Unit 6: Integers, Rational Numbers & The Coordinate Plane — Deep-Sea Rovers, Plunging Seabirds & Four-Quadrant Radar

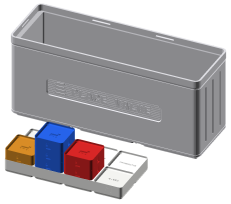
Positive & Negative Integers, Comparing Rational Numbers, Absolute Value, and the 4-Quadrant Coordinate Plane

For Kai, who helps pilot a tethered underwater camera rover with the harbor oceanography club, zero isn't nothing—it's the glittering surface of the sea. High above the boat, a northern gannet circles at +32 meters in the air before folding its wings and plunging straight through the waves down to -14 meters underwater. Meanwhile, in the high Andes mountains, Zoe reads field logs about tiny hummingbirds that survive freezing nights by dropping their body temperature by 28 degrees.

At first, working below zero made Kai and Mia doubt their own common sense. On a negative number line, everything seemed backward: why was -18 degrees colder than -11 degrees, yet -11 was the greater number? And when Kai winched his rover from +25 feet on the boat deck down to -140 feet in the bay, he accidentally subtracted the numbers and came up short on cable.

Mia ran into the same sign traps when plotting landmarks across all four quadrants of the harbor radar screen, mixing up which way to move first and when to add versus subtract distances between coordinates.

By picturing a vertical thermometer and an underwater depth line, Kai, Zoe, and Mia untangle the difference between where a number sits (its signed value) and how far you travel from zero (its absolute value)—and use the sign-change `[+/-]` and absolute-value `[|x|]` keys on the SC-6 to verify every step.



Real-World Mathematical Context & Two-Method Mastery • Hands-On Models: Place Value Blocks & Fraction Strips

UNIT 6 LESSONS — LEARN TWO TEXTBOOK WAYS FIRST, THEN CHECK YOUR WORK ON THE SC-6 CALCULATOR

SEC 6.1 (pp.55-56) Positive and Negative Integers & Opposites

Textbook Ways: Way 1: Equal Distance on Opposite Sides of 0 (Number Line) | Way 2: Additive Inverse & Zero Pairs

Learn by Hand: Integers are the set of whole numbers and their opposites (... -3, -2, -1, 0, 1, 2, 3 ...). Positive numbers are greater than 0 and represent gains, deposits, or elevations above sea level; negative numbers are less than 0 and represent losses, withdrawals, or depths below sea level. Two numbers that are the same distance from 0 on opposite sides are called opposites, and their sum is always 0 (a Zero Pair).

Check Your Work on the SC-6 Calculator:

[f] [↔] [1] [5] [+/−] [ENTER] [1] [5] [+]

Plot -15 and +15 on a number line first. On your SC-6, open [f][LINE] Number Line Mode to see signed jumps across 0, or press 15 [+/-] [ENTER] 15 [+] to confirm that opposites add to 0!

SEC 6.2 (pp.57-58) Comparing and Ordering Integers & Rational Numbers

Textbook Ways: Way 1: Convert to Decimals & Plot on Number Line | Way 2: Rewrite with Least Common Denominator (LCD)

Learn by Hand: On a horizontal number line, numbers increase from left to right and decrease from right to left. For negative numbers, a number closer to 0 is further to the right and therefore GREATER (so -5 > -18 because -5°F is warmer than -18°F). To compare negative fractions and decimals, convert them to the same form or common denominator first.

Check Your Work on the SC-6 Calculator:

[1] [8] [+/−] [ENTER] [5] [+/−] [f] [>]

Type 18 [+/-] [ENTER] 5 [+/-] [f][>]—it compares X (-5) > Y (-18) and flashes YES to confirm -5 > -18!

SEC 6.3 (pp.59-60) Absolute Value and Magnitude

Textbook Ways: Way 1: Measure Distance from 0 on a Number Line | Way 2: Evaluate |x| Grouping Bars Before Outside Signs

Learn by Hand: The absolute value of a number is its distance from 0 on a number line, written as |x|. Because distance is never negative, the absolute value of any non-zero number is always positive: |-6| = 6 and |6| = 6. Be careful not to confuse Opposite (which flips + and -) with Absolute Value (which measures positive distance from 0).

Check Your Work on the SC-6 Calculator:

[1] [4] [+/−] [g] [|x|]

Find the distance from 0 on paper first. On your SC-6, view the distance on [f][LINE] Number Line Mode or press 14 [+/-] [g][|x|] to confirm |-14| = 14.

SEC 6.4 (pp.61-62) The Four-Quadrant Coordinate Plane & Reflections

Textbook Ways: Way 1: Plot & Count Distance to the Mirror Axis | Way 2: Coordinate Reflection Sign Rules

Learn by Hand: The horizontal x-axis and vertical y-axis intersect at the origin (0, 0) and divide the coordinate plane into four quadrants: QI (+, +), QII (-, +), QIII (-, -), and QIV (+, -). To plot an ordered pair (x, y), move horizontally along the x-axis first, then vertically along the y-axis. Reflecting a point across the x-axis changes the sign of y; reflecting across the y-axis changes the sign of x.

Check Your Work on the SC-6 Calculator:

[6] [+/−] [ENTER] [5]

Check the signs of (x, y) on paper first to name each quadrant. On your SC-6, load (-6, 5) with 6 [+/-] [ENTER] 5 so Y holds x = -6 and X holds y = 5.

SEC 6.5 (pp.63-64) Distances in the Coordinate Plane

Textbook Ways: Way 1: Add/Subtract Absolute Values to the Axis | Way 2: Absolute Difference of Coordinates $|x_1 - x_2|$

Learn by Hand: To find the distance between two points that share the same x-coordinate or the same y-coordinate: if the points lie in DIFFERENT quadrants (across an axis), add the absolute values of their differing coordinates; if they lie in the SAME quadrant, subtract the absolute values of their differing coordinates. Equivalently, distance is always |a - b|.

Check Your Work on the SC-6 Calculator:

[6] [+/−] [ENTER] [9] [-] [g] [|x|]

Press 6 [+/-] [ENTER] 9 [-] [g][|x|] to confirm 15 units!

HANDS-ON MODEL: PLACE VALUE BLOCKS

Section 6.1 — Practice A: Positive and Negative Integers & Opposites

Key Vocabulary: integer • positive number • negative number • opposites • additive inverse • zero pair Name: _____ Date: _____ Score: ____ / 100

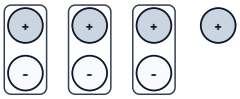
TEXTBOOK CONCEPT & HANDS-ON MODEL (PLACE VALUE BLOCKS)

Opposites on a Number Line (-15 and +15)



Additive Inverses: -15 + 15 = 0

Zero-Pair Cancellation: (+1)+(-1)=0



3 Zero Pairs cancel → +1 Left!

HOW THE TEXTBOOK & VISUAL MODEL WORK TOGETHER:

Textbook Concept: Positive and negative integers represent opposite directions from 0. Opposites (a and -a) are the same distance from 0 on opposite sides.

Textbook Additive Inverse Property: The sum of any number and its opposite is always 0 (-15 + 15 = 0), and -(-a) = a.

WATCH OUT: Zero (0) is its own opposite and is neither positive nor negative; -(-x) means the opposite of -x, which is +x!

WORKED EXAMPLE — 2 TEXTBOOK WAYS FOR DOUBLE POINTS (+20)

Problem: Find the opposite of -15 and the value of -(-15).

WAY 1: Plot Equal Distance Across 0 on a Number Line

-15 is 15 units to the left of 0. Its opposite is 15 units to the right of 0, which is +15.

WAY 2: Additive Inverse / Zero-Pair Rule

The opposite of -15 is -(-15) = +15, because 15 negatives and 15 positives form 15 Zero Pairs: -15 + 15 = 0.

Answer: Opposite of -15 is +15; -15 + 15 = 0

CHECK YOUR WORK ON THE SC-6 CALCULATOR — SECTION 6.1 PRACTICE A (SOLVE BY HAND FIRST, THEN VERIFY!)

Worked Example SC-6 Check Keystrokes:

[f] [↔] [1] [5] [+/-] [ENTER] [1] [5] [+]

Plot -15 and +15 on a number line first. On your SC-6, open [f][LINE] Number Line Mode to see signed jumps across 0, or press 15 [+/-] [ENTER] 15 [+] to confirm that opposites add to 0!

SECTION 6.1 PRACTICE A — KEY IDEAS & MULTI-METHOD PRACTICE

100-PT GOAL: Any 5 in 2 Ways (+20) OR All 10 in 1 Way (+10)!

1 **Write the integer that represents '25 feet below sea level' and state its opposite.**

Starter Step 1: Write 'below sea level' as a negative integer (-); its opposite is the same distance on the positive side of 0 (+).

Way 1 (Paper Work):



WARM-UP • [ ] +10 (1 Way) [ ] +20 (2 Ways) Ans: _____

2 **Find the opposite of -42, and then evaluate -(-42).**

Starter Step 1: The opposite of a negative number is positive, and -(-42) means 'the opposite of -42'.

Way 1 (Paper Work):



WARM-UP • [ ] +10 (1 Way) [ ] +20 (2 Ways) Ans: _____

3 **A research submarine is at an elevation of -18 meters and rises 18 meters. What is its new elevation?**

Way 1 (Paper Work):



CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) Ans: _____

4 **You combine 6 positive (+1) units and 6 negative (-1) units. What is the net value?**

Way 1 (Paper Work):



CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) Ans: _____

5 **A desert canyon hiker starts at -120 feet relative to sea level and climbs 120 feet up the canyon wall. What is her elevation now?**

Way 1 (Show Paper Steps): Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) Ans: _____

6 **Which integer is its own opposite? Explain why using a number line.**

Way 1 (Show Paper Steps): Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) Ans: _____

7 **A freezer thermometer starts at 0°F, drops 12°F, and then rises 19°F. What is the new temperature?**

Way 1 (Show Paper Steps): Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) Ans: _____

8 **In golf, -3 means 3 strokes under par. If a golfer shoots -3 on Saturday and +3 on Sunday, what is her combined score relative to par?**

Way 1 (Show Paper Steps): Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) Ans: _____

9 **An elevator starts at the Ground Lobby (Floor 0), goes up 14 floors, goes down 20 floors to the underground garage, and then goes up 9 floors. On which floor does it stop?**

Way 1 (Show Paper Steps): Way 2 (2nd Method / Check):

CHALLENGE • [ ] +10 (1 Way) [ ] +20 (2 Ways) Ans: _____

10 **Four-Season Robotics Club Treasury: Over four seasons, the robotics club treasury records +$14,500 in fall grants, -$3,200 in winter parts, +$8,900 in spring sponsorships, and -$1,400 in travel fees. What is the club's net treasury balance?**

Way 1 (Show Paper Steps): Way 2 (2nd Method / Check):

CHALLENGE • [ ] +10 (1 Way) [ ] +20 (2 Ways) Ans: _____

HANDS-ON MODEL: PLACE VALUE BLOCKS

Section 6.1 — Practice B: Modeling Real Life (Positive and Negative Integers & Opposites)

Textbook Ways: Equal Distance on Opposite Sides of 0 (Number Line) | Additive Inverse & Zero Pairs Name: _____ Date: _____ Score: ____ / 100

WORKED EXAMPLE — ELEVATION & BANK LEDGER CHANGES (2 TEXTBOOK WAYS = +20 PTS DOUBLE)

Problem: You start with a $0 balance, deposit $35, spend $50, and deposit $20. What is your final balance?

WAY 1: Step-by-Step Jumps on a Number Line

Start at 0 → move right to +35 → move 50 left (passing 0 to -15) → move 20 right (-15 + 20) → lands at +$5.

WAY 2: Group All Positives & All Negatives (Zero Pairs)

Combine positive deposits (+35 + 20 = +55) and pair with -50: 50 zero pairs cancel, leaving +$5.

Check: 35 + 20 - 50 = 55 - 50 = +$5.

WATCH OUT: Zero (0) is its own opposite and is neither positive nor negative; -(-x) means the opposite of -x, which is +x!

Answer: +$5

CHECK YOUR WORK ON THE SC-6 CALCULATOR — SECTION 6.1 PRACTICE B (SOLVE BY HAND FIRST, THEN VERIFY!)

Worked Example SC-6 Check Keystrokes:

f [↔] 3 5 ENTER 5 0 [+/-] + 2 0 +

Track the deposits and withdrawals on paper first. Then check on your SC-6 (in [f][LINE] mode or standard stack): Press 35 [ENTER] 50 [+/-] [+] 20 [+] to confirm a final balance of +$5.

At first, Kai felt silly writing negative signs in front of numbers—how could you have less than nothing? Then he spent Saturday on the oceanography club boat watching the depth finder. With the water's surface marked as 0 feet, a gull hovering 15 feet in the air was at +15, while the camera rover 15 feet underwater was at -15. He realized that negative numbers aren't about holding 'less than nothing' in your hand; they simply tell you which direction you moved from a starting baseline like sea level or 0°C, and every number has a mirror-image opposite the same distance from 0.

SECTION 6.1 PRACTICE B — MODELING REAL LIFE & APPLICATIONS

100-PT GOAL: Any 5 in 2 Ways (+20) OR All 10 in 1 Way (+10)!

1 **Submarine Dive & Climb: A submarine starts at sea level (0 ft), dives 120 feet, and then rises 120 feet. What is its final elevation, and how are -120 and +120 related?**

Starter Step 1: Diving 120 ft is -120 and rising 120 ft is +120; combine these opposite quantities to find the final elevation.

Way 1 (Paper Work):



WARM-UP • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

2 **Death Valley Elevation: Badwater Basin in Death Valley is 282 feet below sea level. Write this elevation as an integer and find its opposite.**

Starter Step 1: Write 'below sea level' with a negative sign (-), then flip the sign to find its opposite.

Way 1 (Paper Work):



WARM-UP • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

3 **Football Drive: A football team gains 12 yards, loses 8 yards, and then gains 15 yards. What is their net yardage change?**

Way 1 (Paper Work):



CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

4 **Hummingbird Overnight Sleep: To survive freezing mountain nights, an Andean hummingbird enters deep sleep (torpor) and drops its body temperature by 28°C. Write this temperature change as an integer and state its opposite.**

Way 1 (Paper Work):



CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

5 **Opposite Quantities: You owe $18 to your brother and earn $25 walking a neighbor's dog. After paying your brother back, how much money do you have left?**

Way 1 (Show Paper Steps): Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

6 **Golf Tournament Score: In golf, par is 0. A player shoots 4 under par (-4) on Friday, 2 over par (+2) on Saturday, and 3 under par (-3) on Sunday. What is her 3-day score?**

Way 1 (Show Paper Steps): Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

7 **If a scuba diver's elevation is x = -35 feet, what is -x, and what is -(-x)?**

Way 1 (Show Paper Steps): Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

8 **Gift Card Balance: You have a $25 gift card, spend $25 on a game, and then receive a $10 store credit. What is your balance?**

Way 1 (Show Paper Steps): Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

9 **Canyon Trail Hiker: A hiker starts in a canyon at -40 meters, climbs 95 meters, and then descends 20 meters. What is her final elevation?**

Way 1 (Show Paper Steps): Way 2 (2nd Method / Check):

CHALLENGE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

10 **Zero-Sum Puzzle: Three integers have a sum of 0. Two of the integers are -14 and -9. What is the third integer?**

Way 1 (Show Paper Steps): Way 2 (2nd Method / Check):

CHALLENGE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

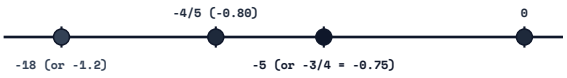
TEXTBOOK MODEL: PAPER / GRAPH / FORMULA

Section 6.2 — Practice A: Comparing and Ordering Integers & Rational Numbers

Key Vocabulary: rational number • inequality (<, >) • number line order (left = less, right = greater) Name: _____ Date: _____ Score: ____ / 100

TEXTBOOK CONCEPT & VISUAL DIAGRAM

Comparing Negative Integers (-5 > -18) & Rationals (-0.75 > -0.80): Right Is Greater!



-5 > -18 (since -5 is right of -18) | -3/4 (-0.75) > -4/5 (-0.80) (Closer to 0 = Greater!)

HOW THE TEXTBOOK & VISUAL MODEL WORK TOGETHER:

Textbook Concept: On a horizontal number line, numbers increase from Left to Right (a number to the right is always greater).

Textbook Rational Ordering: To compare negative fractions and decimals, convert to a common form (all decimals or LCD fractions) and plot on a number line.

WATCH OUT: With negative numbers, a larger digit means FURTHER LEFT (smaller/colder): -18 < -5, and -0.80 < -0.75!

WORKED EXAMPLE — 2 TEXTBOOK WAYS FOR DOUBLE POINTS (+20)

Problem: Compare -5 and -18 using > or <.

WAY 1: Horizontal Number Line Position

Plot -5 (5 units left of 0) and -18 (18 units left of 0). Since -5 is to the right of -18, -5 > -18.

WAY 2: Vertical Number Line (Thermometer / Elevation)

On a vertical scale, -5 is higher (closer to 0) than -18, so -5 > -18 (and -18 < -5).

Answer: -5 > -18 1 Way = +10 | 2 Ways = +20!

CHECK YOUR WORK ON THE SC-6 CALCULATOR — SECTION 6.2 PRACTICE A (SOLVE BY HAND FIRST, THEN VERIFY!)

Worked Example SC-6 Check Keystrokes:

1 8 +/− ENTER 5 +/− f >

Plot -5 and -18 on a number line first. Then check on your SC-6 (in [f][LINE] mode or comparison test): Type 18 [+/-] [ENTER] 5 [+/-] [f][>]—it compares X (-5) > Y (-18) and flashes YES to confirm -5 > -18!

SECTION 6.2 PRACTICE A — KEY IDEAS & MULTI-METHOD PRACTICE

100-PT GOAL: Any 5 in 2 Ways (+20) OR All 10 in 1 Way (+10)!

1 **Which temperature is warmer (greater): -12°C or -5°C? Write an inequality comparing them.**

Starter Step 1: Plot both temperatures on a number line—whichever number sits further to the RIGHT is greater (>).

Way 1 (Paper Work):



WARM-UP • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

2 **Compare -9 and -2 using > or <.**

Starter Step 1: On a horizontal number line, numbers further to the LEFT are lesser (<) and numbers further to the RIGHT are greater (>).

Way 1 (Paper Work):



WARM-UP • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

3 **Compare -15 and 0 using > or <.**

Way 1 (Paper Work):



CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

4 **Order the integers from least to greatest: 4, -7, 0, -2, -10.**

Way 1 (Paper Work):



CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

5 **Compare -3/4 and -0.6 using > or <.**

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

6 **Compare -2 1/2 and -2.3 using > or <.**

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

7 **Compare -5/8 and -7/8 using > or <.**

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

8 **Error Analysis: Leo says -4.5 > -4.1 because 4.5 > 4.1. Explain why -4.1 is actually greater using a number line.**

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

9 **Order the rational numbers -1.5, 1 1/4, -1 3/4, and -0.5 from least to greatest.**

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CHALLENGE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

10 **Three marine biologists are diving at elevations of -14.8 m, -14 1/2 m, and -15.2 m. Which diver is the deepest (least elevation), and which is the shallowest (greatest elevation)?**

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CHALLENGE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

TEXTBOOK MODEL: PAPER / GRAPH / FORMULA

Section 6.2 — Practice B: Modeling Real Life (Comparing and Ordering Integers & Rational Numbers)

Textbook Ways: Convert to Decimals & Plot on Number Line | Rewrite with Least Common Denominator (LCD) Name: _____ Date: _____ Score: ____ / 100

WORKED EXAMPLE — COMPARING DIVING DEPTHS (2 TEXTBOOK WAYS = +20 PTS DOUBLE)

Problem: Diver A is at -4/5 meter and Diver B is at -0.75 meter. Which diver is closer to the surface (at a greater elevation)?

WAY 1: Convert Both to Decimals & Plot on a Number Line

Write -4/5 = -0.80. On a number line, -0.75 is to the right of -0.80 (closer to 0), so -0.75 > -4/5 (Diver B).

WAY 2: Rewrite Both as Fractions with LCD = 20

-4/5 = -16/20 and -0.75 = -3/4 = -15/20. Since -15 > -16, -15/20 > -16/20, so Diver B (-0.75 m) is higher.

Watch-Out: For negative numbers, a smaller distance from 0 means a GREATER value!

WATCH OUT: With negative numbers, a larger digit means FURTHER LEFT (smaller/colder): -18 < -5, and -0.80 < -0.75!

Answer: -0.75 > -4/5 (Diver B is closer to the surface)

CHECK YOUR WORK ON THE SC-6 CALCULATOR — SECTION 6.2 PRACTICE B (SOLVE BY HAND FIRST, THEN VERIFY!)

Worked Example SC-6 Check Keystrokes:

0 • 7 5 +/− ENTER • 4 • 5 +/− FDISP g <

Convert -4/5 to -0.80 and compare with -0.75 on paper first. On your SC-6, load Y with 0.75 [+/-] [ENTER], enter X as [.] 4 [.] 5 [+/-] [FDISP] (-0.8), and press [g][<]—it flashes YES to confirm -4/5 < -0.75!

Zoe got tripped up comparing a puffin diving to -45.8 meters and a cormorant diving to -45.25 meters. Because 45.8 is bigger than 45.25 on the positive side of zero, she initially wrote that -45.8 > -45.25—and felt frustrated when it was marked wrong. Sketching a vertical depth line down into the water cleared up her confusion: going from 0 down through -45.25 to -45.80 means -45.80 is lower (deeper and colder), while -45.25 is higher (closer to the surface, so it is the greater number). Adding a trailing zero (-45.80 vs. -45.25) made comparing negative decimals way easier.

SECTION 6.2 PRACTICE B — MODELING REAL LIFE & APPLICATIONS

100-PT GOAL: Any 5 in 2 Ways (+20) OR All 10 in 1 Way (+10)!

1 **Arctic Weather Station: Monday's temperature was -18°C and Tuesday's was -11°C. Write an inequality comparing the two temperatures. Which day was warmer?**

Starter Step 1: Compare -18°C and -11°C on a thermometer—the temperature closer to 0°C is warmer (greater).

Way 1 (Paper Work):



WARM-UP • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

2 **Seabird Dive Depths: A puffin dives to an elevation of -45.8 meters and a cormorant dives to -45.25 meters. Which bird dives deeper, and which elevation is greater?**

Starter Step 1: Compare the tenths place of -45.80 and -45.25: the more negative number is deeper, while the number closer to 0 is greater.

Way 1 (Paper Work):



WARM-UP • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

3 **Compare -2/3 and -5/6 using < or >.**

Way 1 (Paper Work):



CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

4 **Golf Leaderboard: Four golfers have scores of -6, +2, -9, and -1. Order the scores from least to greatest.**

Way 1 (Paper Work):



CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

5 **Freezing Points: Water freezes at 0°C, olive oil at -6°C, mercury at -39°C, and rubbing alcohol at -89°C. Order these freezing points from coldest to warmest.**

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

6 **Reef & Sea Turtle: A coral reef is at -3 1/4 meters and a sea turtle is at -3.1 meters. Which one is closer to the water's surface?**

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

7 **Stock Market Change: Stock A changed by -1.8% and Stock B changed by -1.08%. Which stock had the greater (less negative) percent change?**

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

8 **Name one fraction and one decimal that lie between -4 and -3 on a number line.**

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

9 **Order -7/4, -1.6, 3/2, and -2 from least to greatest.**

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CHALLENGE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

10 **If a < b and both a and b are negative numbers, which number is farther from 0 on the number line? Give an example.**

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CHALLENGE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

TEXTBOOK MODEL: PAPER / GRAPH / FORMULA

Section 6.3 — Practice A: Absolute Value and Magnitude

Key Vocabulary: absolute value (|x|) • magnitude • distance from zero • opposite vs. absolute value Name: _____ Date: _____ Score: ____ / 100

TEXTBOOK CONCEPT & VISUAL DIAGRAM

Absolute Value |x| = Distance from 0 on the Number Line



Both -14 and +14 are 14 units from 0!

Inside vs. Outside '-' Sign:

|-14| = +14

|14| = +14

-|-14| = -14

(Evaluate | | bars first!)

HOW THE TEXTBOOK & VISUAL MODEL WORK TOGETHER:

Textbook Concept: The absolute value |x| is the distance between x and 0 on a number line. Since distance is never negative, |x| ≥ 0.

Textbook Order of Operations with |x|: Absolute value bars act as grouping symbols—evaluate inside the bars FIRST, then apply any outside '-' sign.

WATCH OUT: Absolute value |x| is always ≥ 0, but a negative sign OUTSIDE the bars (-|-14| = -14) stays negative!

WORKED EXAMPLE — 2 TEXTBOOK WAYS FOR DOUBLE POINTS (+20)

Problem: Evaluate |-14|, |14|, and -|-14|.

WAY 1: Count Distance from 0 on a Number Line

-14 is 14 units from 0 (|-14| = 14) and +14 is 14 units from 0 (|14| = 14).

WAY 2: Evaluate Inside Bars First, Outside Sign Second

In -|-14|, first evaluate |-14| = 14 inside the bars, then apply the outside '-' sign → -14.

Answer: |-14| = 14, |14| = 14, -|-14| = -14

CHECK YOUR WORK ON THE SC-6 CALCULATOR — SECTION 6.3 PRACTICE A (SOLVE BY HAND FIRST, THEN VERIFY!)

Worked Example SC-6 Check Keystrokes:

1 4 +/− g |x|

Find the distance from 0 on paper first. On your SC-6, view the distance on [f][LINE] Number Line Mode or press 14 [+/-] [g][|x|] to confirm |-14| = 14.

SECTION 6.3 PRACTICE A — KEY IDEAS & MULTI-METHOD PRACTICE

100-PT GOAL: Any 5 in 2 Ways (+20) OR All 10 in 1 Way (+10)!

1 Evaluate |-125|.

Starter Step 1: Absolute value |-125| measures the distance from -125 to 0 on the number line, so distance is always positive.

Way 1 (Paper Work):



WARM-UP • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

2 Evaluate |-18| + |12|.

Starter Step 1: Find the positive distance inside each absolute value bar first (|-18| and |12|), then add the two distances.

Way 1 (Paper Work):



WARM-UP • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

3 Evaluate |-4.8| + |-3.2|.

Way 1 (Paper Work):



CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

4 Evaluate |-35| - |-19|.

Way 1 (Paper Work):



CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

5 Compare |-12| and |9| using > or <.

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

6 Evaluate -|-24|.

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

7 Evaluate 50 - |-18|.

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

8 Order the values from least to greatest: |-8|, -6, |-3|, 0, -|-9|.

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

9 A scuba diver is at -32 feet and a seagull is flying at +25 feet relative to sea level (0 ft). Which is closer to sea level, and by how many feet?

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CHALLENGE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

10 Two bank accounts have balances of -$45 and -$28. Which account has the greater debt (magnitude), and which account has the greater balance?

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CHALLENGE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

TEXTBOOK MODEL: PAPER / GRAPH / FORMULA

Section 6.3 — Practice B: Modeling Real Life (Absolute Value and Magnitude)

Textbook Ways: Measure Distance from 0 on a Number Line | Evaluate |x| Grouping Bars Before Outside Signs Name: _____ Date: _____ Score: ____ / 100

WORKED EXAMPLE — TOTAL VERTICAL TRAVEL ACROSS SEA LEVEL (2 TEXTBOOK WAYS = +20 PTS DOUBLE)

Problem: A northern gannet spots a fish from +32 meters in the air and plunges to -14 meters underwater. What is the bird's total vertical travel distance, and what is 50 - |-18|?

WAY 1: Add Absolute Value Distances to Sea Level (0)

Distance from +32 m to 0 is |32| = 32 m; distance from 0 to -14 m is |-14| = 14 m. Total plunge = 32 + 14 = 46 m.

WAY 2: Evaluate |x| Bars as Grouping Symbols

In 50 - |-18|, evaluate |-18| = 18 first, then subtract: 50 - 18 = 32 (never change - |-18| into + 18!).

Check: Distance from 0 is always positive or zero.

WATCH OUT: Absolute value |x| is always ≥ 0, but a negative sign OUTSIDE the bars (-|-14| = -14) stays negative!

Answer: 46 m plunge; and 50 - |-18| = 32

CHECK YOUR WORK ON THE SC-6 CALCULATOR — SECTION 6.3 PRACTICE B (SOLVE BY HAND FIRST, THEN VERIFY!)

Worked Example SC-6 Check Keystrokes:

5 0 ENTER 1 8 +/- g |x| -

Add the distances to and past sea level on paper first. Check on your SC-6:
For 50 - |-18|, press 50 [ENTER] 18 [+/-] [g][|x|] [-] to confirm 32.

When a northern gannet plunged from +32 meters in the air down to -14 meters underwater, Kai subtracted 32 - 14 and said the bird traveled 18 meters. Looking at the photo on the screen, though, he knew that couldn't be right—the bird fell 32 meters just to hit the waves, plus another 14 meters underwater! He realized that physical distance on a tape measure or winch cable is always positive. Using absolute value to add the distance to zero plus the distance past zero (|32| + |-14| = 32 + 14 = 46 meters) kept the negative sign from tricking him.

SECTION 6.3 PRACTICE B — MODELING REAL LIFE & APPLICATIONS

100-PT GOAL: Any 5 in 2 Ways (+20) OR All 10 in 1 Way (+10)!

1 **Plunging Gannet Dive: A northern gannet spots a fish from +32 meters in the air and plunges to -14 meters underwater. What is the total vertical distance of its dive?**

Starter Step 1: Find the air distance |+32| and the underwater distance |-14|, then add both positive distances together.

Way 1 (Paper Work):



WARM-UP • [ ] +10 (1 Way) [ ] +20 (2 Ways) Ans: _____

2 **Account Balances: Account A has a balance of -$65 and Account B has a balance of -$40. Which account has the greater balance, and which account has the greater debt?**

Starter Step 1: Compare positions on a number line for greater balance, then compare absolute values (|-65| vs. |-40|) for greater debt.

Way 1 (Paper Work):



WARM-UP • [ ] +10 (1 Way) [ ] +20 (2 Ways) Ans: _____

3 **Drone Flight Distance: A drone flies 18 meters west (-18) from its launch pad, hovers, and then flies 14 meters east (+14) from the launch pad. What is the sum of the two distances from the pad?**

Way 1 (Paper Work):



CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) Ans: _____

4 **Evaluate |-35| and -|-35|. Explain why the two answers have opposite signs.**

Way 1 (Paper Work):



CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) Ans: _____

5 **Archery Bullseye Error: Three arrows land at -2.4 cm, +1.8 cm, and -1.5 cm from the center of a target (0). Which arrow landed closest to the bullseye?**

Way 1 (Show Paper Steps): Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) Ans: _____

6 **Evaluate |-42| ÷ |-6| + |-11|.**

Way 1 (Show Paper Steps): Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) Ans: _____

7 **Submarine Camera Cable: A research vessel winches a camera from +25 feet on the deck down to -140 feet in the ocean. How many feet of cable are let out?**

Way 1 (Show Paper Steps): Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) Ans: _____

8 **Find all numbers on the number line whose absolute value is 19.**

Way 1 (Show Paper Steps): Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) Ans: _____

9 **Order |-8|, -6, |5|, and -|-9| from least to greatest.**

Way 1 (Show Paper Steps): Way 2 (2nd Method / Check):

CHALLENGE • [ ] +10 (1 Way) [ ] +20 (2 Ways) Ans: _____

10 **Evaluate |-3 1/2| + |2 1/4| - |-1 1/8|.**

Way 1 (Show Paper Steps): Way 2 (2nd Method / Check):

CHALLENGE • [ ] +10 (1 Way) [ ] +20 (2 Ways) Ans: _____

TEXTBOOK MODEL: PAPER / GRAPH / FORMULA

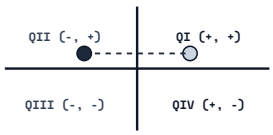
Section 6.4 — Practice A: The Four-Quadrant Coordinate Plane & Reflections

Key Vocabulary: coordinate plane • origin (0, 0) • x-axis • y-axis • quadrants (I, II, III, IV) • ordered pair (x, y) • reflection

Name: _____ Date: _____ Score: ____ / 100

TEXTBOOK CONCEPT & VISUAL DIAGRAM

Four-Quadrant Coordinate Plane



Axis Reflection Rules

Reflect Across x-Axis:
Keep x, flip y: (x, y) → (x, -y)

Reflect Across y-Axis:
Flip x, keep y: (x, y) → (-x, y)

HOW THE TEXTBOOK & VISUAL MODEL WORK TOGETHER:

Textbook Concept: For an ordered pair (x, y), start at the origin (0, 0), move horizontally along the x-axis first, then vertically parallel to the y-axis.

Textbook Reflection Rules: Across the x-axis → keep x, flip y: (x, y) → (x, -y). Across the y-axis → flip x, keep y: (x, y) → (-x, y).

WATCH OUT: In (x, y), move horizontally (Left/Right) for x FIRST, then vertically (Up/Down) for y. Reflecting across the x-axis flips y!

WORKED EXAMPLE — 2 TEXTBOOK WAYS FOR DOUBLE POINTS (+20)

Problem: Identify the quadrant for A(-6, 5), B(4, -7), and C(-3, -8).

WAY 1: Move Horizontally (x) Then Vertically (y)

A(-6, 5): left 6, up 5 → Quad II. B(4, -7): right 4, down 7 → Quad IV. C(-3, -8): left 3, down 8 → Quad III.

WAY 2: Quadrant Sign Chart

QI = (+, +), QII = (-, +), QIII = (-, -), QIV = (+, -). Match the signs of each ordered pair.

Answer: A: Quadrant II, B: Quadrant IV, C: Quadrant III

CHECK YOUR WORK ON THE SC-6 CALCULATOR — SECTION 6.4 PRACTICE A (SOLVE BY HAND FIRST, THEN VERIFY!)

Worked Example SC-6 Check Keystrokes:

6 +/− ENTER 5

Check the signs of (x, y) on paper first to name each quadrant. On your SC-6, load (-6, 5) with 6 [+/-] [ENTER] 5 so Y holds x = -6 and X holds y = 5.

SECTION 6.4 PRACTICE A — KEY IDEAS & MULTI-METHOD PRACTICE

100-PT GOAL: Any 5 in 2 Ways (+20) OR All 10 in 1 Way (+10)!

1 **Name the Quadrant (I, II, III, or IV) that contains the point (7, -4).**

Starter Step 1: Starting at the origin (0, 0), move RIGHT for positive x = +7 and DOWN for negative y = -4 to identify the quadrant.

Way 1 (Paper Work):



WARM-UP • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

2 **Name the Quadrant that contains the point (-9, -2).**

Starter Step 1: Starting at the origin (0, 0), move LEFT for negative x = -9 and DOWN for negative y = -2 to identify the quadrant.

Way 1 (Paper Work):



WARM-UP • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

3 **Name the Quadrant that contains the point (-5, 11).**

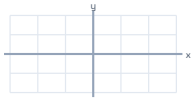
Way 1 (Paper Work):



CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

4 **Reflect the point (6, 9) across the y-axis. What are the coordinates of the reflected point?**

Way 1 (Paper Work):



CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

5 **Reflect the point (6, 9) across the x-axis. What are the coordinates of the reflected point?**

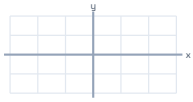
Way 1 (Paper Work):



CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

6 **Reflect the point (-3, -7) across the x-axis.**

Way 1 (Paper Work):



CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

7 **Reflect the point (-8, 4) across the y-axis, and then reflect the new point across the x-axis.**

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

8 **Which axis does the point (0, -9) lie on, and which axis does the point (-7, 0) lie on?**

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

9 **Starting at (4, -5), you move 7 units left and 8 units up. What are your final coordinates, and which quadrant are you in?**

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CHALLENGE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

10 **Points A(-4, 2), B(4, 2), and C(4, -5) are three vertices of a rectangle. What are the coordinates of the fourth vertex D, and which quadrant is it in?**

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CHALLENGE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

TEXTBOOK MODEL: PAPER / GRAPH / FORMULA

Section 6.4 — Practice B: Modeling Real Life (The Four-Quadrant Coordinate Plane & Reflections)

Textbook Ways: Plot & Count Distance to the Mirror Axis | Coordinate Reflection Sign Rules Name: _____ Date: _____ Score: ____ / 100

WORKED EXAMPLE — REFLECTING POINTS ACROSS THE AXES (2 TEXTBOOK WAYS = +20 PTS DOUBLE)

Problem: Start at P(-5, 8) in Quadrant II. Reflect P across the x-axis, and then reflect the new point across the y-axis. What are the final coordinates?

WAY 1: Coordinate Sign Rules ((x, -y) Then (-x, y))

1. Across x-axis (keep x, flip y): (-5, 8) → (-5, -8). 2. Across y-axis (flip x, keep y): (-5, -8) → (5, -8) in Quad IV.

WAY 2: Count Equal Steps Across Each Mirror Axis

P is 8 units above the x-axis, so its reflection is 8 units below at (-5, -8); 5 units left of y-axis flips to 5 units right → (5, -8).

Check: (-5, 8) in QII (-, +) flips to QIII (-, -) and then to QIV (+, -).

WATCH OUT: In (x, y), move horizontally (Left/Right) for x FIRST, then vertically (Up/Down) for y. Reflecting across the x-axis flips y!

Answer: (5, -8) in Quadrant IV

CHECK YOUR WORK ON THE SC-6 CALCULATOR — SECTION 6.4 PRACTICE B (SOLVE BY HAND FIRST, THEN VERIFY!)

Worked Example SC-6 Check Keystrokes:

5 [+/-] [ENTER] 8 [+/-] [⇅] [+/-] [⇅]

Reflect (-5, -8) across the y-axis on paper first (flip x, keep y). On your SC-6, press 5 [+/-] [ENTER] 8 [+/-], then swap to x with [x swap y], flip its sign with [+/-], and swap back to see (5, -8)!

Whenever Mia plotted points like (-4, 3) on a four-quadrant grid, she second-guessed whether to move up-and-down first or left-and-right first, and she tried to memorize rules for reflecting points across the x-axis and y-axis that she immediately mixed up. Then Kai told her how he remembers it on the boat radar: you walk across the deck horizontally (x) before you climb or dive vertically (y). And instead of memorizing reflection rules, folding her graph paper along the horizontal x-axis showed her that a mountain peak at (8, 12) reflects straight down into the lake at (8, -12)—keeping x the same and flipping y!

SECTION 6.4 PRACTICE B — MODELING REAL LIFE & APPLICATIONS

100-PT GOAL: Any 5 in 2 Ways (+20) OR All 10 in 1 Way (+10)!

1 **Treasure Map Quadrants: Identify the quadrant (I, II, III, or IV) for each landmark: Cave (-8, 4), Lighthouse (7, 9), Shipwreck (-5, -6), and Pier (3, -10).**

Starter Step 1: Check the signs of (x, y) for each landmark: QI is (+,+), QII is (-,+), QIII is (-,-), and QIV is (+,-).

Way 1 (Paper Work):



WARM-UP • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

2 **Axis Landmarks: A buoy is at (0, -7) and a dock is at (9, 0). Explain why neither lies in a quadrant, and tell which axis each point lies on.**

Starter Step 1: A point with x = 0 sits directly on the vertical y-axis; a point with y = 0 sits directly on the horizontal x-axis.

Way 1 (Paper Work):



WARM-UP • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

3 **Lake Reflection: A mountain peak is plotted at (8, 12). Its reflection in a lake flips across the x-axis. What are the coordinates of the reflected peak?**

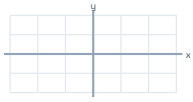
Way 1 (Paper Work):



CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

4 **Bird Wing Symmetry: In a biology flight-tunnel diagram, a bird's left wingtip is at (-9, 5) in Quadrant II. Reflect the point across the y-axis to find the coordinates of the right wingtip.**

Way 1 (Paper Work):



CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

5 **Double Reflection: Start at (-4, -9). Reflect across the x-axis first, and then reflect the new point across the y-axis. What are the final coordinates?**

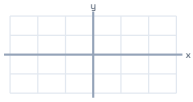
Way 1 (Paper Work):



CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

6 **Robot Grid Walk: Starting at the origin (0, 0), a robot moves 6 units left, 8 units down, and then 10 units right. What are its final coordinates and quadrant?**

Way 1 (Paper Work):



CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

7 **Without graphing, identify the quadrant containing P(-2.5, 4.5) and the quadrant containing Q(-1.5, -3.5).**

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

8 **Point M(7, -3) is reflected across an axis to M'(-7, -3). Which axis was it reflected across? Explain how you know.**

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

9 **Square Centered at the Origin: One vertex of a square centered at (0, 0) is (5, 5). What are the coordinates of the other three vertices?**

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CHALLENGE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

10 **If x is negative and y is positive, which quadrant contains (x, y), and which quadrant contains (-x, -y)?**

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CHALLENGE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

TEXTBOOK MODEL: PAPER / GRAPH / FORMULA

Section 6.5 — Practice A: Distances in the Coordinate Plane

Key Vocabulary: horizontal distance • vertical distance • same quadrant (subtract |x|) • different quadrants (add |x|) Name: _____ Date: _____ Score: ____ / 100

TEXTBOOK CONCEPT & VISUAL DIAGRAM

Coordinate Plane Distance: Crosses Axis → ADD |x| | Same Side → SUBTRACT |x|

Different Quadrants (Crosses Axis):

(-6, 4) ←-- y-axis --→ (9, 4)

ADD Distances: |-6| + |9| = 6 + 9 = 15

Coord Diff: |9 - (-6)| = |15| = 15 units

Same Quadrant (Same Side of Axis):

(-12, -3) and (-4, -3) in Quad III

SUBTRACT: |-12| - |-4| = 12 - 4 = 8

Coord Diff: |-4 - (-12)| = |8| = 8 units

HOW THE TEXTBOOK & VISUAL MODEL WORK TOGETHER:

Textbook Method 1 (Quadrant Rule): Use absolute values—ADD distances to the axis when points are in DIFFERENT quadrants; SUBTRACT when in the SAME quadrant.

Textbook Method 2 (Coordinate Difference): Subtract the changing coordinates and take the absolute value: $|x_1 - x_2|$ or $|y_1 - y_2|$.

WATCH OUT: If two points are in DIFFERENT quadrants (cross an axis), ADD |x|; if they are in the SAME quadrant, SUBTRACT |x|!

WORKED EXAMPLE — 2 TEXTBOOK WAYS FOR DOUBLE POINTS (+20)

Problem: Find the distance between (-6, 4) and (9, 4), and between (-12, -3) and (-4, -3).

WAY 1: Add Across Axis / Subtract in Same Quadrant

(-6, 4) to (9, 4) crosses the y-axis → ADD |-6| + |9| = 15. (-12, -3) to (-4, -3) is in QIII → SUBTRACT |-12| - |-4| = 8.

WAY 2: Count Grid Steps / Absolute Difference $|x_1 - x_2|$

From -6 to 0 is 6 steps and 0 to 9 is 9 steps (6 + 9 = 15); from -12 to -4 is 8 steps (|-12 - (-4)| = 8).

Answer: 15 units; and 8 units 1 Way = +10 | 2 Ways = +20!

CHECK YOUR WORK ON THE SC-6 CALCULATOR — SECTION 6.5 PRACTICE A (SOLVE BY HAND FIRST, THEN VERIFY!)

Worked Example SC-6 Check Keystrokes:

6 [+/-] [ENTER] 9 [-] [g] [|x|]

Sketch the points on a grid line first to see if they cross an axis. Then check the distance between (-6, 4) and (9, 4) on your SC-6 (or in [f][LINE] mode): Press 6 [+/-] [ENTER] 9 [-] [g][|x|] to confirm 15 units!

SECTION 6.5 PRACTICE A — KEY IDEAS & MULTI-METHOD PRACTICE

100-PT GOAL: Any 5 in 2 Ways (+20) OR All 10 in 1 Way (+10)!

1 Find the distance between (-12, 5) and (15, 5).

Starter Step 1: Since (-12, 5) and (15, 5) are on opposite sides of the y-axis, ADD their absolute distances from 0: |-12| + |15|.

Way 1 (Paper Work):



WARM-UP • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

2 Find the vertical distance between (-3, -4) and (-3, -15).

Starter Step 1: Since both points are in the same quadrant (both y-values are negative), SUBTRACT their absolute distances: |-15| - |-4|.

Way 1 (Paper Work):



WARM-UP • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

3 Find the vertical distance between (7, 9) and (7, -6).

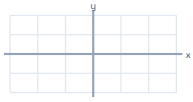
Way 1 (Paper Work):



CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

4 Find the horizontal distance between (-14, 2) and (-5, 2).

Way 1 (Paper Work):



CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

5 Find the distance between (-3.5, 4) and (6.5, 4).

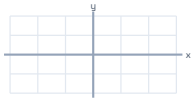
Way 1 (Paper Work):



CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

6 Find the distance between (2, -4 1/2) and (2, 3 1/2).

Way 1 (Paper Work):



CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

7 A horizontal segment starts at (-6, 3) and extends 10 units to the right. What are the coordinates of its right endpoint?

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

8 Error Analysis: To find the distance from (-5, 2) to (8, 2), Sam subtracted 8 - 5 = 3. Explain why the distance is 13 units, not 3 units.

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

9 Archaeological Survey Grid: A rectangular excavation zone has corners at (-4, 6), (5, 6), (5, -2), and (-4, -2). What are the perimeter and area of the zone?

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CHALLENGE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

10 City Grid Walk: On a map where 1 grid unit equals 0.5 mile, you walk from (-6, -2) north to (-6, 8), and then east to (4, 8). How many total miles did you walk?

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CHALLENGE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

TEXTBOOK MODEL: PAPER / GRAPH / FORMULA

Section 6.5 — Practice B: Modeling Real Life (Distances in the Coordinate Plane)

Textbook Ways: Add/Subtract Absolute Values to the Axis | Absolute Difference of Coordinates $|x_1 - x_2|$ Name: _____ Date: _____ Score: ____ / 100

WORKED EXAMPLE — TOWN PARK BLUEPRINT ON A COORDINATE GRID (2 TEXTBOOK WAYS = +20 PTS DOUBLE)

Problem: A rectangular park has vertices at (-4, 6), (5, 6), (5, -2), and (-4, -2). Find the perimeter and area of the park.

WAY 1: Add Distances to the Axes

Width (crosses y-axis): |-4| + |5| = 4 + 5 = 9 units. Height (crosses x-axis): |6| + |-2| = 6 + 2 = 8 units. P = 2(9+8) = 34; A = 9×8 = 72.

WAY 2: Decompose into 4 Quadrant Sub-Rectangles

Sub-areas in the 4 quadrants: QII (4×6=24) + QI (5×6=30) + QIII (4×2=8) + QIV (5×2=10) = 72 square units.

Check: Width = 9, Height = 8 → Perimeter = 9 + 8 + 9 + 8 = 34 units.

WATCH OUT: If two points are in DIFFERENT quadrants (cross an axis), ADD |x|; if they are in the SAME quadrant, SUBTRACT |x|!

Answer: Perimeter = 34 units; Area = 72 square units

CHECK YOUR WORK ON THE SC-6 CALCULATOR — SECTION 6.5 PRACTICE B (SOLVE BY HAND FIRST, THEN VERIFY!)

Worked Example SC-6 Check Keystrokes:

4 +/− ENTER 5 − g |x| 6 ENTER 2 +/− − f ■

Find the horizontal width |-4 - 5| = 9 and vertical height |6 - (-2)| = 8 on paper first. Check on your SC-6: Press 9 [ENTER] 8 [f][RECT] to verify Area = 72 on X and Perimeter = 34 on Y!

On a harbor coordinate map, Mia needed the length of a suspension bridge stretching from (-8, 5) to (11, 5), and the distance between the school gym at (-14, 6) and the library at (-5, 6). At first she didn't know when to add and when to subtract the absolute values. Plotting both pairs on a simple horizontal line, she saw why you don't need a memorized rule: the bridge crosses right over the y-axis (0), so you add the 8 units on the left plus the 11 units on the right (19 units); the gym and library sit on the same side of 0, so you subtract their distances (14 - 5 = 9 units).

SECTION 6.5 PRACTICE B — MODELING REAL LIFE & APPLICATIONS

100-PT GOAL: Any 5 in 2 Ways (+20) OR All 10 in 1 Way (+10)!

1 **Suspension Bridge: On a map, the West Tower of a bridge is at (-8, 5) and the East Tower is at (11, 5). How many units long is the bridge?**

Starter Step 1: (-8, 5) and (11, 5) are on opposite sides of the y-axis, so add their distances from the y-axis: |-8| + |11|.

Way 1 (Paper Work):



WARM-UP • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

2 **Campus Map Walk: On a school map where 1 unit = 10 meters, the gym is at (-14, 6) and the library is at (-5, 6). How many meters apart are they?**

Starter Step 1: (-14, 6) and (-5, 6) are on the same side of the y-axis, so subtract |-14| - |-5| to find the grid units, then multiply by 10 m.

Way 1 (Paper Work):



WARM-UP • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

3 **Mine Shaft: A vertical elevator runs from a surface tower at (4, 15) straight down to a tunnel at (4, -35). What is the total vertical distance?**

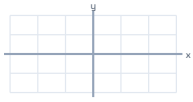
Way 1 (Paper Work):



CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

4 **Dog Park Perimeter: A rectangular dog park has corners at (-3, 4), (7, 4), (7, -2), and (-3, -2). Find its width, height, and perimeter.**

Way 1 (Paper Work):



CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

5 **Dog Park Area: What is the area of the rectangular dog park in Problem 4?**

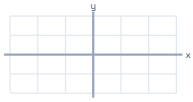
Way 1 (Paper Work):



CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

6 **Subway Line: Stop A is at (-3.5, 2) and Stop C is at (4.25, 2), where each unit is 1 mile. How many miles is it from Stop A to Stop C?**

Way 1 (Paper Work):



CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

7 **Find the vertical distance between (2, 3 1/2) and (2, -2 1/4).**

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

8 **Drone Delivery Route: A drone flies due north from (-6, -2) to (-6, 5), and then turns due east to (4, 5). What is the total distance of its two-leg flight?**

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CORE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

9 **Two Possible Locations: Point A is at (3, 4). Point B has the same y-coordinate as Point A and is 8 units away horizontally. What are the two possible ordered pairs for Point B?**

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CHALLENGE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

10 **Coordinate Triangle Area: A right triangle has vertices at (-4, -1), (6, -1), and (-4, 7). Find its base, height, and area.**

Way 1 (Show Paper Steps):

Way 2 (2nd Method / Check):

CHALLENGE • [ ] +10 (1 Way) [ ] +20 (2 Ways) **Ans:** _____

SUMMATIVE QUIZ: 10 ITEMS × 10 PTS = 100

Unit 6 Mastery Quiz: Integers, Rational Numbers & The Coordinate Plane

Directions: Show all paper steps in each box (+6 pts work, +4 pts answer). Name: _____ Date: _____ Score: ____ / 100

ASSESSMENT BREAKDOWN: #1–#6 CORE FLUENCY (60 PTS) • #7–#9 REAL-LIFE APPLICATIONS (30 PTS) • #10 ERROR ANALYSIS (10 PTS)

Standards Assessed: CCSS 6.NS.C.5–8 • TEKS 6.2B–D, 6.11A • FL MA.6.NSO.1.1–4, MA.6.GR.1 • UIL & MathCounts Signed Rationals & Coordinate Geometry

1 CORE FLUENCY (SEC 6.1) • 10 PTS

Write the opposite of -14 and evaluate $|-14| + |-5|$.

[ ] Work (+6) [ ] Ans (+4) **Ans:** _____

2 CORE FLUENCY (SEC 6.2) • 10 PTS

Order the integers from least to greatest: -3, 4, -8, 0, -1.

[ ] Work (+6) [ ] Ans (+4) **Ans:** _____

3 CORE FLUENCY (SEC 6.3) • 10 PTS

Compare using $<$, $>$, or $=$: (a) $-3/4$ ___ $-1/2$ (b) -1.8 ___ -1.25.

[ ] Work (+6) [ ] Ans (+4) **Ans:** _____

4 CORE FLUENCY (SEC 6.4) • 10 PTS

Identify the quadrant of point $P(-6, 5)$ and write the coordinates of its reflection across the x-axis.

[ ] Work (+6) [ ] Ans (+4) **Ans:** _____

5 CORE FLUENCY (SEC 6.5) • 10 PTS

Find the distance between $A(-4, 3)$ and $B(7, 3)$ on the coordinate plane.

[ ] Work (+6) [ ] Ans (+4) **Ans:** _____

6 CORE FLUENCY (SEC 6.5) • 10 PTS

Find the perimeter of a rectangle with vertices $(-3, 2)$, $(5, 2)$, $(5, -4)$, and $(-3, -4)$.

[ ] Work (+6) [ ] Ans (+4) **Ans:** _____

7 REAL LIFE (SEC 6.2) • 10 PTS

A research submarine is at -240 m and a diving bell is at -185 m. Which vessel is deeper, and by how many meters?

[ ] Work (+6) [ ] Ans (+4) **Ans:** _____

8 REAL LIFE (SEC 6.1) • 10 PTS

The morning temperature in Fairbanks was $-16°$F. By afternoon it reached $0°$F. How many degrees did the temperature change?

[ ] Work (+6) [ ] Ans (+4) **Ans:** _____

9 REAL LIFE (SEC 6.5) • 10 PTS

On a town grid where 1 unit = 1 block, the library is at $(-5, -2)$ and the park is at $(-5, 6)$. How many blocks apart are they?

[ ] Work (+6) [ ] Ans (+4) **Ans:** _____

10 ERROR ANALYSIS (SEC 6.2) • 10 PTS

Sam claims that $-12 > -5$ because 12 is greater than 5. Use a number line to explain why Sam is incorrect and write the true inequality.

[ ] Work (+6) [ ] Ans (+4) **Ans:** _____

Unit 6: Integers, Rational Numbers & The Coordinate Plane — Practice A & B Complete Key

Big Ideas Math Grade 6 — Chapter 6 • Concept → Blocks (When Applicable: Place Value Blocks & Fraction Strips) → Calculator

1. Concept (Stack Approach): A signed number combines direction (+/-) and magnitude (|x|). In postfix entry, typing the magnitude first and pressing [+/-] attaches the sign to the number in X.

2. Blocks (Place Value & Fraction): Pair positive and negative Place Value blocks to form Zero Pairs, and compare rational magnitudes with 84 mm Fraction Strips.

3. Calculator (SC-6): Distinguish [+/-] (change sign of X) from [-] (subtract X from Y), animate signed hops on [f][LINE], find distance with [g][|x|], and test order with [f][>]/[g][<].



SEC 6.1 (pp.55-56): POSITIVE AND NEGATIVE INTEGERS & OPPOSITES

Methods: W1: Equal Distance on Opposite Sides of 0 (Number Line) | W2: Additive Inverse & Zero Pairs

PRACTICE A (p.55): KEY IDEAS (#1-#10) — ExA: Opposite of -15 is +15; -15 + 15 = 0		PRACTICE B (p.56): REAL LIFE (#1-#10) — ExB: +$5	
A1: -25; Opposite = +25 (25) Check: 25 [+/-] [+/-]	**A2: +42; and +42 (42)** Check: 42 [+/-] [+/-]	**B1: 0 ft (opposites / additive inverses) (-120 + 120)** Check: 120 [+/-] [ENT] 120 [+]	**B2: -282 ft; opposite is +282 ft (-282)** Check: 282 [+/-]
A3: 0 m (Sea level) (-18 + 18) Check: 18 [+/-] [ENT] 18 [+]	**A4: 0 (6 + -6)** Check: 6 [ENT] 6 [+/-] [+]	**B3: +19 yards ((12 + -8) + 15)** Check: 12 [ENT] 8 [+/-] [+] 15 [+]	**B4: -28°C; opposite is +28°C (-28)** Check: 28 [+/-]
A5: 0 ft (-120 + 120) Check: 120 [+/-] [ENT] 120 [+]	**A6: 0 (0 is 0 units from itself) (-0)** Check: 0 [+/-]	**B5: +$7 (-18 + 25)** Check: 18 [+/-] [ENT] 25 [+]	**B6: -5 (5 under par) ((-4 + 2) + -3)** Check: 4 [+/-] [ENT] 2 [+] 3 [+/-] [+]
A7: +7°F (-12 + 19) Check: 12 [+/-] [ENT] 19 [+]	**A8: 0 (Even par) (-3 + 3)** Check: 3 [+/-] [ENT] 3 [+]	**B7: -x = +35; -(-x) = -35 (35)** Check: 35 [+/-] [+/-]	**B8: +$10 ((25 - 25) + 10)** Check: 25 [ENT] 25 [-] 10 [+]
A9: Floor 3 ((14 + -20) + 9) Check: 14 [ENT] 20 [+/-] [+] 9 [+]	**A10: +$18,800 (((14500 - 3200) + 8900) - 1400)** Check: 14500 [ENT] 3200 [-] 8900 [+] 1400 [-]	**B9: +35 meters ((-40 + 95) - 20)** Check: 40 [+/-] [ENT] 95 [+] 20 [-]	**B10: +23 (-14 + -9)** Check: 14 [+/-] [ENT] 9 [+/-] [+] [+/-]

SEC 6.2 (pp.57-58): COMPARING AND ORDERING INTEGERS & RATIONAL NUMBERS

Methods: W1: Convert to Decimals & Plot on Number Line | W2: Rewrite with Least Common Denominator (LCD)

PRACTICE A (p.57): KEY IDEAS (#1-#10) — ExA: -5 > -18		PRACTICE B (p.58): REAL LIFE (#1-#10) — ExB: -0.75 > -4/5 (Diver B is closer to the surface)	
A1: -5°C (-12 < -5) (Compare -5 < -12) Check: 5 [+/-] [ENT] 12 [+/-] [g][<]	**A2: -9 < -2 (Compare -2 < -9)** Check: 2 [+/-] [ENT] 9 [+/-] [g][<]	B1: -11°C > -18°C (Tuesday was warmer) (Compare -18 > -11) Check: 18 [+/-] [ENT] 11 [+/-] [f][>]	**B2: Puffin (-45.8 m) is deeper; -45.25 > -45.8** Check: 45.8 [+/-] [ENT] 45.25 [+/-] [f][>]
A3: -15 < 0 (Compare 0 < -15) Check: 0 [ENT] 15 [+/-] [g][<]	**A4: -10, -7, -2, 0, 4 (fLINE)** Check: Left-to-right on [f][LINE]	**B3: -2/3 > -5/6 (-4/6 > -5/6) (Compare -5/6 > -2/3)** Check: [.] 5 [.] 6 [+/-] [ENT] [.] 2 [.] 3 [+/-] [f][>]	**B4: -9, -6, -1, +2 (Compare -6 < -9)** Check: 6 [+/-] [ENT] 9 [+/-] [g][<]
A5: -3/4 < -0.6 (-0.6 is greater) (Compare -0.6 < -0.75) Check: 0.6 [+/-] [ENT] 0.75 [+/-] [g][<]	**A6: -2 1/2 < -2.3 (Compare -2.3 < -2.5)** Check: 2.3 [+/-] [ENT] 2.5 [+/-] [g][<]	**B5: -89°C, -39°C, -6°C, 0°C (Compare -39 < -89)** Check: 39 [+/-] [ENT] 89 [+/-] [g][<]	**B6: Sea turtle (-3.1 > -3.25) (Compare -3.1 < -3.25)** Check: 3.1 [+/-] [ENT] 3.25 [+/-] [g][<]
A7: -5/8 > -7/8 (Compare -7/8 > -5/8) Check: [.] 7 [.] 8 [+/-] [ENT] [.] 5 [.] 8 [+/-] [f][>]	**A8: -4.1 is closer to 0 (further to the right) than -4.5** Check: 4.5 [+/-] [ENT] 4.1 [+/-] [g][<]	**B7: Stock B (-1.08% > -1.8%) (Compare -1.8 > -1.08)** Check: 1.8 [+/-] [ENT] 1.08 [+/-] [f][>]	**B8: Examples: -3 1/2 and -3.5 (-3.5)** Check: 3.5 [+/-]
A9: -1 3/4, -1.5, -0.5, 1 1/4 (-1.75, -1.5, -0.5, 1.25) Check: Mental / Table Check	**A10: Deepest: -15.2 m; Shallowest: -14 1/2 m** Check: Mental / Table Check	**B9: -2, -7/4 (-1.75), -1.6, 3/2 (1.5) (-7/4 → Dec/Frac)** Check: [.] 7 [.] 4 [+/-] [FDISP]	**B10: a is farther from 0 (e.g., -10 < -2) (|-10|)** Check: 10 [+/-] [g][|x|]

SEC 6.3 (pp.59-60): ABSOLUTE VALUE AND MAGNITUDE

Methods: W1: Measure Distance from 0 on a Number Line | W2: Evaluate |x| Grouping Bars Before Outside Signs

PRACTICE A (p.59): KEY IDEAS (#1-#10) — ExA: |-14| = 14, |14| = 14, -|-14| = -14		PRACTICE B (p.60): REAL LIFE (#1-#10) — ExB: 46 m plunge; and 50 - |-18| = 32	
A1: 125 (|-125|) Check: 125 [+/-] [g][|x|]	**A2: 30 (|-18| + 12)** Check: 18 [+/-] [g][|x|] [ENT] 12 [+]	**B1: |32| + |-14| = 46 meters (|32| + |-14|)** Check: 32 [g][|x|] 14 [+/-] [g][|x|] [+]	B2: -$40 is greater balance; Account A owes more ($65) (|-65|) Check: 65 [+/-] [g][|x|]
A3: 8.0 (|-4.8| + |-3.2|) Check: 4.8 [+/-] [g][|x|] [ENT] 3.2 [+/-] [g][|x|] [+]	**A4: 16 (|-35| - |-19|)** Check: 35 [+/-] [g][|x|] [ENT] 19 [+/-] [g][|x|] [-]	**B3: |-18| + |14| = 32 meters (|-18| + |14|)** Check: 18 [+/-] [g][|x|] 14 [g][|x|] [+]	**B4: 35 and -35 (outside minus applies after | |) (|-35|)** Check: 35 [+/-] [g][|x|] [+/-]
A5: |-12| > |9| (12 > 9) (12 > 9) Check: Mental / Table Check	**A6: -24 (|-24|)** Check: 24 [+/-] [g][|x|] [+/-]	**B5: -1.5 cm (|-1.5| = 1.5 cm is smallest) (|-1.5|)** Check: 1.5 [+/-] [g][|x|]	**B6: 42 ÷ 6 + 11 = 18 ((|-42| ÷ |-6|) + |-11|)** Check: 42 [+/-] [g][|x|] 6 [+/-] [g][|x|] [÷] 11 [+/-] [g][|x|] [+]
A7: 32 (50 - |-18|) Check: 50 [ENT] 18 [+/-] [g][|x|] [-]	**A8: -|-9|, -6, 0, |-3|, |-8| (Values: 8, -6, 3, 0, -9)** Check: Mental / Table Check	**B7: |25| + |-140| = 165 feet (|25| + |-140|)** Check: 25 [g][|x|] 140 [+/-] [g][|x|] [+]	**B8: 19 and -19 (|-19|)** Check: 19 [+/-] [g][|x|]
A9: Seagull is closer by 7 feet (25 < 32) (|-32| - 25) Check: 32 [+/-] [g][|x|] [ENT] 25 [-]	**A10: Greater debt: -$45 ($45); Greater balance: -$28** Check: Mental / Table Check	**B9: -|-9| (-9), -6, |5| (5), |-8| (8) (|-9|)** Check: 9 [+/-] [g][|x|] [+/-]	**B10: 4 5/8 ((3 1/2 + 2 1/4) - 1 1/8)** Check: 3 [.] 1 [.] 2 [ENT] 2 [.] 1 [.] 4 [+] 1 [.] 1 [.] 8 [-]

SEC 6.4 (pp.61-62): THE FOUR-QUADRANT COORDINATE PLANE & REFLECTIONS

Methods: W1: Plot & Count Distance to the Mirror Axis | W2: Coordinate Reflection Sign Rules

PRACTICE A (p.61): KEY IDEAS (#1-#10) — ExA: A: Quadrant II, B: Quadrant IV, C: Quadrant III		PRACTICE B (p.62): REAL LIFE (#1-#10) — ExB: (5, -8) in Quadrant IV	
A1: Quadrant IV ((+, -) → Right, Down) Check: Mental / Table Check	**A2: Quadrant III ((-, -) → Left, Down)** Check: Mental / Table Check	B1: Cave: II, Lighthouse: I, Shipwreck: III, Pier: IV (4) Check: 8 [+/-] [ENT] 4	**B2: (0, -7) is on y-axis; (9, 0) is on x-axis (-7)** Check: 0 [ENT] 7 [+/-]
A3: Quadrant II ((-, +) → Left, Up) Check: Mental / Table Check	**A4: (-6, 9) (-6)** Check: 6 [+/-] → -6	**B3: (8, -12) in Quadrant IV (-12)** Check: 8 [ENT] 12 [+/-]	**B4: (9, 5) in Quadrant I (5)** Check: 9 [+/-] [+/-] [ENT] 5
A5: (6, -9) (-9) Check: 9 [+/-] → -9	**A6: (-3, 7) (7)** Check: 7 [+/-] [+/-] → +7	**B5: Step 1: (-4, 9); Final: (4, 9) in Quad I (9)** Check: 4 [+/-] [+/-] [ENT] 9 [+/-] [+/-]	**B6: (4, -8) in Quadrant IV (-6 + 10)** Check: 6 [+/-] [ENT] 10 [+]
A7: (8, -4) (Flip x → (8,4); flip y → (8,-4)) Check: Mental / Table Check	**A8: (0, -9) on y-axis; (-7, 0) on x-axis** Check: Mental / Table Check	**B7: P: Quadrant II; Q: Quadrant III (4.5)** Check: 2.5 [+/-] [ENT] 4.5	**B8: y-axis (x-coordinate changed sign, y stayed -3) (-7)** Check: 7 [+/-]
A9: (-3, 3) in Quadrant II (4 - 7; -5 + 8) Check: 4 [ENT] 7 [-]; 5 [+/-] [ENT] 8 [+]	A10: D(-4, -5) in Quadrant III (Match x of A (-4) & y of C (-5)) Check: Mental / Table Check	**B9: (-5, 5), (-5, -5), and (5, -5) (-5)** Check: 5 [+/-]	**B10: (x, y) is in Quad II; (-x, -y) is in Quad IV (-1)** Check: 1 [+/-]

SEC 6.5 (pp.63-64): DISTANCES IN THE COORDINATE PLANE

Methods: W1: Add/Subtract Absolute Values to the Axis | W2: Absolute Difference of Coordinates $|x_1 - x_2|$

PRACTICE A (p.63): KEY IDEAS (#1-#10) — ExA: 15 units; and 8 units		PRACTICE B (p.64): REAL LIFE (#1-#10) — ExB: Perimeter = 34 units; Area = 72 square units	
A1: 27 units (|(-12 - 15)|) Check: 12 [+/-] [ENT] 15 [-] [g][|x|]	**A2: 11 units (|(-4 - -15)|)** Check: 4 [+/-] [ENT] 15 [+/-] [-] [g][|x|]	**B1: |-8| + |11| = 19 units (|(-8 - 11)|)** Check: 8 [+/-] [ENT] 11 [-] [g][|x|]	**B2: 9 units = 90 meters (|(-14 - -5)|)** Check: 14 [+/-] [ENT] 5 [+/-] [-] [g][|x|]
A3: 15 units (|(9 - -6)|) Check: 9 [ENT] 6 [+/-] [-] [g][|x|]	**A4: 9 units (|(-14 - -5)|)** Check: 14 [+/-] [ENT] 5 [+/-] [-] [g][|x|]	**B3: |15| + |-35| = 50 units (|(15 - -35)|)** Check: 15 [ENT] 35 [+/-] [-] [g][|x|]	**B4: W = 10, H = 6, Perimeter = 32 units** Check: 3 [+/-] [ENT] 7 [-] [g][|x|] 4 [ENT] 2 [+/-] [-] [g][|x|] [+] 2 [×]
A5: 10 units (|(-3.5 - 6.5)|) Check: 3.5 [+/-] [ENT] 6.5 [-] [g][|x|]	**A6: 8 units (|(-4.5 - 3.5)|)** Check: 4.5 [+/-] [ENT] 3.5 [-] [g][|x|]	**B5: 60 square units (A = 10 × 6)** Check: 10 [ENT] 6 [f][RECT]	**B6: 7.75 miles (3.5 + 4.25)** Check: 3.5 [ENT] 4.25 [+]
A7: (4, 3) (-6 + 10) Check: 6 [+/-] [ENT] 10 [+]	A8: 13 units (They lie on opposite sides of the y-axis: |-5| + |8| = 13) Check: 5 [+/-] [ENT] 8 [-] [g][|x|]	**B7: 5 3/4 units (3 1/2 + 2 1/4)** Check: 3 [.] 1 [.] 2 [ENT] 2 [.] 1 [.] 4 [+]	**B8: 7 + 10 = 17 units ((5 + 2) + (4 + 6))** Check: 5 [ENT] 2 [+] 4 [ENT] 6 [+] [+]
A9: Perimeter = 34 units, Area = 72 sq units (Width 9, Height 8) Check: Mental / Table Check	**A10: 20 grid units = 10 miles (10 + 10 = 20 units × 0.5)** Check: Mental / Table Check	**B9: (11, 4) and (-5, 4) (3 - 8)** Check: 3 [ENT] 8 [+] 3 [ENT] 8 [-]	**B10: Base = 10, Height = 8, Area = 40 units²** Check: 4 [ENT] 6 [+] 7 [ENT] 1 [+] [g][TRI]

UNIT 06 MASTERY QUIZ KEY (p.117 • TEKS 6.2B-D, 6.11A): Q1: 14; 19 Q2: -8, -3, -1, 0, 4 Q3: (a) < (b) < Q4: Quad II; (-6, -5) Q5: 11 units

Quiz Q6-Q10 Answers: Q6: 28 units Q7: Submarine by 55 m Q8: 16°F Q9: 8 blocks Q10: -12 is left of -5; -12 < -5