

2026 PSIA MIDDLE SCHOOL CALCULATOR APPLICATIONS CHAMPIONSHIP EXAM

STATE CHAMPIONSHIP DIVISION • 50 PROBLEMS • 30-MINUTE SPEED SPRINT • GRADES 6-8

// OFFICIAL CONTESTANT IDENTIFICATION

CONTESTANT NAME: _____

SCHOOL / CAMPUS: _____

GRADE LEVEL: [] 6 [] 7 [] 8

CONTESTANT ID #: _____

OFFICIAL SCORING GRID (GRADER VERIFIED)						
PAGE	P1	P2	P3	P4	P5	TOTAL
Correct (+5):						
Errors (-4):						
Subtotal:						

CONTEST RULES: 30 MINUTES • ALL ANSWERS TO 3 SIGNIFICANT DIGITS UNLESS INTEGER (INT) OR DOLLARS (\$).
SCORING: +5 points per correct response; -4 points per wrong/skipped question up to last attempted. Zero after last attempted.

- PSIA-1.

142.5 + 89.4 - 38.6

1 = _____
- PSIA-2.

24.8 × 14.5

2 = _____
- PSIA-3.

456 ÷ 18.5

3 = _____
- PSIA-4.

(18.5 + 42.6) × 3.80

4 = _____
- PSIA-5.

125.0 - (42.5 × 2.40)

5 = _____ INT
- PSIA-6.

(34.5 × 12.0) / (18.4 - 9.20)

6 = _____
- PSIA-7.

14.25 + 28.50 + 64.75 + 18.20

7 = _____
- PSIA-8.

(145.0 - 85.0) / 4.00

8 = _____ INT
- PSIA-9.

A school robotics club purchases 12 StackCalc educational calculators at \$24.50 each. If state sales tax is 8.25%, what is the total cost in dollars?

9 = \$ _____
- PSIA-10.

A battery-powered mobile electronics testing cart travels 240 miles on 7.50 gallons of fuel equivalent. How many miles per gallon did the vehicle achieve?

10 = _____ mpg

PSIA-11. $3/8 + 5/6 - 1/4$ **11 =** _____

PSIA-12. $(4/5) \times (7/10)$ **12 =** _____

PSIA-13. $(5/12) \div (2/3)$ **13 =** _____

PSIA-14. $1 / 18.5 + 1 / 24.0$ **14 =** _____

PSIA-15. $14.5^2 - 8.20^2$ **15 =** _____

PSIA-16. $\sqrt{(450 + 185)}$ **16 =** _____

PSIA-17. $(24.5 \times 18.2)^{0.5}$ **17 =** _____

PSIA-18. 18% of 650 **18 =** _____ INT

PSIA-19. A 3D printed calculator chassis faceplate has length 28.5 cm and width 14.2 cm. Calculate its perimeter in centimeters.

19 = _____ cm

PSIA-20. A warehouse shipping crate holds 48 packaged mechanical tactile key switch modules weighing 1.25 pounds each. If the empty crate weighs 4.50 pounds, what is the total shipping weight in pounds?

20 = _____ lbs

PSIA-21. $(48.5 \times 12.4) / \sqrt{125}$ 21 = _____

PSIA-22. $\sqrt{(18.5^2 + 24.0^2)}$ 22 = _____

PSIA-23. $1 / (1/14.5 + 1/28.0)$ 23 = _____

PSIA-24. $(145.0 - 24.5) / (8.50 \times 3.20)$ 24 = _____

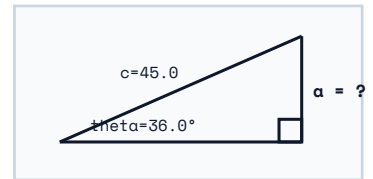
PSIA-25. $\$180.00 \times (1 - 0.35)$ 25 = _____ \$

PSIA-26. $(28.5 + 14.2)^{1.5}$ 26 = _____

PSIA-27. $\sqrt{(18.5^2 + 12.4^2 + 8.5^2)}$ 27 = _____

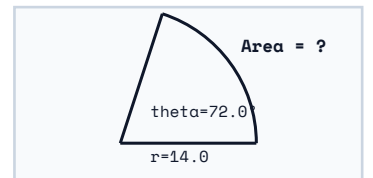
PSIA-28. $(4.5 \times 10^4) \times (2.8 \times 10^{-2})$ 28 = _____ INT

PSIA-29. RIGHT TRIANGLE: In the right triangle shown, hypotenuse $c = 45.0$ cm and acute angle $\theta = 36.0^\circ$. Find the vertical leg a in centimeters.



29 = _____ cm

PSIA-30. CIRCULAR SECTOR: A circular sector has radius $r = 14.0$ m and central angle $\theta = 72.0^\circ$. Calculate the sector area in square meters.



30 = _____ m^2

PSIA-31. $(184.5 \times 28.2) / (14.5 + 32.0)$ 31 = _____

PSIA-32. $\sqrt{(\sqrt{850} + \sqrt{340})}$ 32 = _____

PSIA-33. $(34.5^\circ - 18.2^\circ) / 12.0$ 33 = _____

PSIA-34. $1 / 12.4^2 + 1 / 18.5^2$ 34 = _____

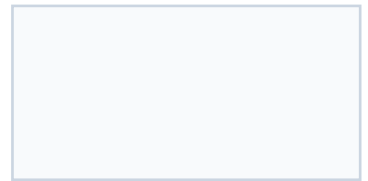
PSIA-35. $(45.0 \times 2.8 \times 10^3) / 1.45$ 35 = _____

PSIA-36. $\pi \times 14.5^2 \times 8.20$ 36 = _____ cm³

PSIA-37. $(1/3) \times \pi \times 8.5^2 \times 14.0$ 37 = _____ cm³

PSIA-38. $(4/3) \times \pi \times 9.5^3$ 38 = _____ cm³

PSIA-39. RIGHT CIRCULAR CYLINDER: A cylinder has base radius $r = 6.50$ cm and vertical height $h = 18.0$ cm. Calculate its volume in cubic centimeters.



39 = _____ cm³

PSIA-40. Two automated conveyor carriages in an electronics assembly plant separated by 180 miles travel toward each other on parallel tracks at constant speeds of 45.0 mph and 55.0 mph. In how many hours will they meet?

40 = _____ hrs

PSIA-41. $\sqrt{[(48.5 \times 14.2 \times 8.5) / 6.4]}$ **41 =** _____

PSIA-42. $(125.0^{1.5} - 45.0^{1.5}) / 18.0$ **42 =** _____

PSIA-43. $1 / (1/12.0 + 1/18.0 + 1/24.0)$ **43 =** _____

PSIA-44. $(28.5 + 42.5) / (85.0 - 34.0)$ **44 =** _____

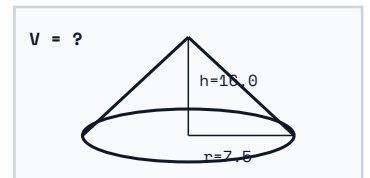
PSIA-45. $18.5 \times \ln(145.0)$ **45 =** _____

PSIA-46. $45.0 \times \sin(38.5^\circ)$ **46 =** _____

PSIA-47. $24.5 \times \cos(52.0^\circ)$ **47 =** _____

PSIA-48. $\sqrt[3]{(38.0^3 - 18.0^3)}$ **48 =** _____

PSIA-49. RIGHT CIRCULAR CONE: A cone has base radius $r = 7.50$ cm and vertical height $h = 16.0$ cm. Calculate its volume in cubic centimeters.



49 = _____ cm^3

PSIA-50. A circuit board ultrasonic cleaning tank is filled by intake line A in 4.50 hours and drained by outlet valve B in 7.00 hours. If both valves remain open simultaneously, in how many hours will the empty tank fill?

50 = _____ hrs