LESSON 92 PSAT Practice

This is a timed practice test. Get a timer, a bubble answer sheet, and blank sheets of paper for your calculations. When you are ready, set the timer for **25 minutes** and begin. Do not use a calculator. Mark all your answers on the answer sheet. Only answers marked on the answer sheet can be scored. After the test, make sure you review what you missed.

1. $|3 + 4x| = 5$

   If a and b are the solutions to the equation above, what is the value of ab ?

   A) -2 B) -1 C) 1 D) 2

2. $f(x) = 4x - 5$

   Given the function above, what is the value of x when $f(x) = 3$?

   A) -12 B) 2 C) 3 D) 7

3. $\sqrt[3]{-64x^{12}y^6}$

   Which of the following is equivalent to the expression above?

   A) $8x^6y^3$ B) $-8x^4y^2$

   C) $4x^6y^3$ D) $-4x^4y^2$

4. $\sqrt{5x - 1} = \sqrt{3x + 7}$

   If x is a solution to the equation above, what is the value of x^2 ?

   A) 4 B) 9 C) 16 D) 25

5. If $x^2 - 3x + k$ is divisible by $x - 4$, what is the value of k ?

   A) -4 B) -3 C) 2 D) 4

6. $(2x + 1)(x - 3)$

   Which of the following is equivalent to the expression above?

   A) $-6x^2 + x$ B) $2x^2 - 3$

   C) $2x^2 - 5x - 3$ D) $2x^2 - 7x + 3$

7. $\dfrac{6^4 \cdot 3^2}{2^4}$

   Which of the following is equal to the value above?

   A) 3^3 B) 3^6 C) 3^8 D) $\dfrac{3^6}{2^3}$

8. $(x^2y^3)^{\frac{1}{6}} = x^a y^b$

   If the equation above is true for all positive values of x and y, what is the value of ab ?

   A) $\dfrac{1}{6}$ B) $\dfrac{5}{6}$ C) 1 D) 6

9. $x^3 = \sqrt[n]{x^m}$

   If the equation above is true for all positive values of x, what is the ratio of m^2 to n^2 ?

   A) 1:3   B) 3:1   C) 1:9   D) 9:1

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10. A book club has 20 members. The ratio of boys to girls is 3:2. How many more girls should join the club to make the ratio 1:1 ?

   A) 2   B) 4   C) 6   D) 8

11. Luke made exactly 40% of the free throws he shot. Which of the following could be the number of free throws he shot?

   A) 21   B) 23   C) 25   D) 27

12. $y = 100 - 0.5x$

   The equation above models the remaining balance, y, on a prepaid phone card after making a total of x minutes of calls. If the equation is graphed in the xy-plane, what does the slope of the graph represent?

   A) The initial balance of $100

   B) The remaining balance of $100

   C) The rate per call of $0.50

   D) The rate per minute of $0.50

13. Line l has the equation $2x + y = 1$. Line m has the equation $x - 2y = 1$. Which of the following is true about the two lines?

   A) They are parallel.

   B) They are perpendicular.

   C) They are the same.

   D) They intersect, but not at a right angle.

14. A bacteria culture starts with 100 bacteria and doubles in size every hour. Which function gives the number of bacteria, N, after t hours?

   A) $N(t) = 100t^2$

   B) $N(t) = (100t)^2$

   C) $N(t) = 100(2)^t$

   D) $N(t) = (100 \cdot 2)^t$

15. The area of a triangle is one-half base times height. A triangle has a base of 8 cm and a height of x cm. What are all the values of x for which the area of the triangle is at least 16 cm^2 and at most 48 cm^2 ?

   A) $2 < x < 6$ B) $2 \leq x \leq 6$

   C) $4 < x < 12$ D) $4 \leq x \leq 12$

16. The resale value of a car varies inversely with its age. If a 2-year-old car costs $18,000, what will be the value of the car when it is 6 years old?

   A) $600   B) $5,400

   C) $6,000   D) $54,000

17. If a boat travels upstream at 16 km/h and downstream at 20 km/h, how fast does the boat travel in still water?

   A) 5 km/h   B) 18 km/h

   C) 22 km/h   D) 36 km/h

STOP
This is the end of the test. If you finish before time is up, check your work.