

Some PSAT Practice ... No Calculator  
Multiple choice

3



3

9

A parachute design uses 18 separate pieces of rope. Each piece of rope must be at least 270 centimeters and no more than 280 centimeters long. What inequality represents all possible values of the total length of rope  $x$ , in centimeters, needed for the parachute?

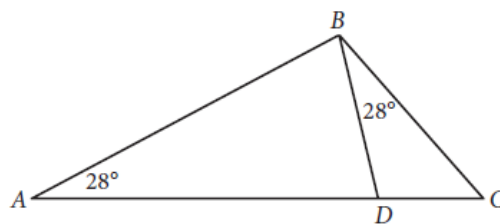
- A)  $270 \leq x \leq 280$
- B)  $4,860 \leq x \leq 4,870$
- C)  $4,860 \leq x \leq 5,040$
- D)  $5,030 \leq x \leq 5,040$

10

A carpenter has \$60 with which to buy supplies. The carpenter needs to buy both nails and screws. Nails cost \$12.99 per box, and screws cost \$14.99 per box. If  $n$  represents the number of boxes of nails and  $s$  represents the number of boxes of screws, which of the following systems of inequalities models this situation?

- A) 
$$\begin{cases} 12.99n + 14.99s \geq 60 \\ n + s \leq 1 \end{cases}$$
- B) 
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11



In the figure above, which of the following ratios has the same value as  $\frac{AB}{BC}$  ?

- A)  $\frac{BD}{DC}$
- B)  $\frac{BC}{AC}$
- C)  $\frac{AD}{BD}$
- D)  $\frac{DC}{BC}$

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3

1

Which of the following is an equivalent form of the expression  $15x + 24ax$  ?

- A)  $39ax^2$
- B)  $39(a + 2x)$
- C)  $(5 + 8a)x$
- D)  $(15 + 24a)x$

2

The formula  $d = rt$  is used to calculate the distance an object travels over a period of time,  $t$ , at a constant rate,  $r$ . Based on this formula, what is the rate,  $r$ , in terms of  $d$  and  $t$  ?

- A)  $r = \frac{d}{t}$
- B)  $r = dt$
- C)  $r = \frac{t}{d}$
- D)  $r = d - t$

3

Which of the following ordered pairs  $(x, y)$  satisfies both equations  $y = x^2 + 3x - 4$  and  $x = y - 4$  ?

- A)  $(0, -4)$
- B)  $(2, 6)$
- C)  $(3, 14)$
- D)  $(5, 9)$

4

Which of the following is a solution to the equation  $2x^2 + 4x = 3 + 3x^2$  ?

- A)  $-1$
- B)  $0$
- C)  $3$
- D)  $6$

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3

5

$$\begin{aligned} -3x - 4y &= 20 \\ x - 10y &= 16 \end{aligned}$$

If  $(x, y)$  is the solution to the system of equations above, what is the value of  $x$  ?

- A)  $-14$
- B)  $-12$
- C)  $-4$
- D)  $16$

6

The equation  $y = 36 + 18x$  models the relationship between the height  $y$ , in inches, of a typical golden delicious apple tree and the number of years,  $x$ , after it was planted. If the equation is graphed in the  $xy$ -plane, what is indicated by the  $y$ -intercept of the graph?

- A) The age, in years, of a typical apple tree when it is planted
- B) The height, in inches, of a typical apple tree when it is planted
- C) The number of years it takes a typical apple tree to grow
- D) The number of inches a typical apple tree grows each year

7

Giovanni wants to buy shirts that cost \$19.40 each and sweaters that cost \$24.80 each. An 8% sales tax will be applied to the entire purchase. If Giovanni buys 2 shirts, which equation relates the number of sweaters purchased,  $p$ , and the total cost in dollars,  $y$  ?

- A)  $1.08(38.80 + 24.80p) = y$
- B)  $38.80 + 24.80p = 0.92y$
- C)  $38.80 + 24.80p = 1.08y$
- D)  $0.92(38.80 + 24.80p) = y$

8

A line is graphed in the  $xy$ -plane. If the line has a positive slope and a negative  $y$ -intercept, which of the following points cannot lie on the line?

- A)  $(-3, -3)$
- B)  $(-3, 3)$
- C)  $(3, -3)$
- D)  $(3, 3)$

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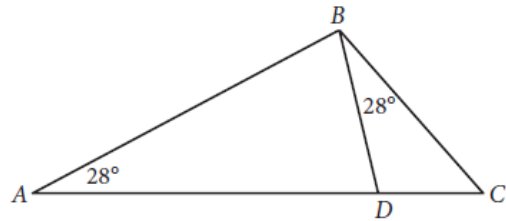
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12

$$(x^2y^3)^{\frac{1}{2}}(x^2y^3)^{\frac{1}{3}} = x^{\frac{a}{3}}y^{\frac{a}{2}}$$

If the equation above, where  $a$  is a constant, is true for all positive values of  $x$  and  $y$ , what is the value of  $a$  ?

- A) 2
- B) 3
- C) 5
- D) 6

13

If the equation  $y = (x - 6)(x + 12)$  is graphed in the  $xy$ -plane, what is the  $x$ -coordinate of the parabola's vertex?

- A) -6
- B) -3
- C) 3
- D) 6

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### Answers

Black letter after answer indicates difficulty level  
(e = easy, m = medium, h = hard).

#### MATH TEST – CALCULATOR

1.	B	e	6.	A	m	11.	D	m
2.	A	e	7.	B	m	12.	A	m
3.	B	e	8.	C	m	13.	B	m
4.	D	m	9.	A	m	14.	C	m
5.	B	e	10.	D	m	15.	C	m

16.	B	m	21.	B	h	26.	D	h
17.	D	h	22.	D	h	27.	D	h
18.	B	h	23.	D	h			
19.	C	m	24.	C	m			
20.	B	h	25.	B	h			