

Pre-AP Precalculus

CR 3 – SAT PREP 10

NO CALCULATOR

1] If $\frac{2a}{b} = \frac{1}{2}$, what is the value of $\frac{b}{a}$?

A) $\frac{1}{8}$

B) $\frac{1}{4}$

C) 2

D) 4

2] Which of the following expressions is equivalent to

$$\frac{x^2 - 2x - 5}{x - 3} ?$$

A) $x - 5 - \frac{20}{x - 3}$

B) $x - 5 - \frac{10}{x - 3}$

C) $x + 1 - \frac{8}{x - 3}$

D) $x + 1 - \frac{2}{x - 3}$

3]

$$y = x^2 + 3x - 7$$

$$y - 5x + 8 = 0$$

How many solutions are there to the system of equations above?

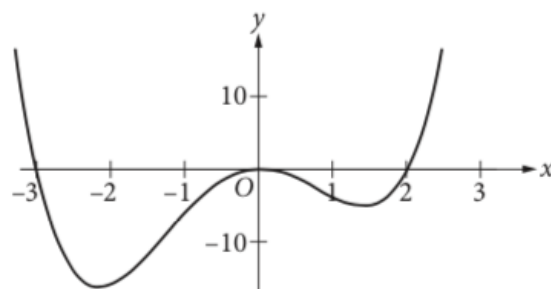
A) There are exactly 4 solutions.

B) There are exactly 2 solutions.

C) There is exactly 1 solution.

D) There are no solutions.

4]



Which of the following could be the equation of the graph above?

A) $y = x(x - 2)(x + 3)$

B) $y = x^2(x - 2)(x + 3)$

C) $y = x(x + 2)(x - 3)$

D) $y = x^2(x + 2)(x - 3)$

5] $x^2 + 6x + 4$

Which of the following is equivalent to the expression above?

- A) $(x + 3)^2 + 5$
- B) $(x + 3)^2 - 5$
- C) $(x - 3)^2 + 5$
- D) $(x - 3)^2 - 5$

6] Ken is working this summer as part of a crew on a farm. He earned \$8 per hour for the first 10 hours he worked this week. Because of his performance, his crew leader raised his salary to \$10 per hour for the rest of the week. Ken saves 90% of his earnings from each week. What is the least number of hours he must work the rest of the week to save at least \$270 for the week?

- A) 38
- B) 33
- C) 22
- D) 16

7] The expression $\frac{x^{-2}y^{\frac{1}{2}}}{x^{\frac{1}{3}}y^{-1}}$, where $x > 1$ and $y > 1$, is

equivalent to which of the following?

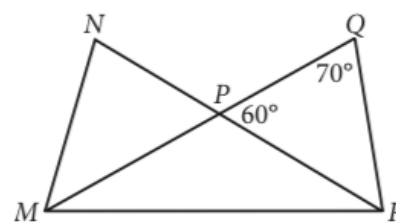
- A) $\frac{\sqrt{y}}{\sqrt[3]{x^2}}$
- B) $\frac{y\sqrt{y}}{\sqrt[3]{x^2}}$
- C) $\frac{y\sqrt{y}}{x\sqrt{x}}$
- D) $\frac{y\sqrt{y}}{x^2\sqrt[3]{x}}$

8] $g(x) = 2x - 1$
 $h(x) = 1 - g(x)$

The functions g and h are defined above. What is the value of $h(0)$?

- A) -2
- B) 0
- C) 1
- D) 2

9]



In the figure above, \overline{MQ} and \overline{NR} intersect at point P , $NP = QP$, and $MP = PR$. What is the measure, in degrees, of $\angle QMR$? (Disregard the degree symbol when gridding your answer.)

10] Marisa needs to hire at least 10 staff members for an upcoming project. The staff members will be made up of junior directors, who will be paid \$640 per week, and senior directors, who will be paid \$880 per week. Her budget for paying the staff members is no more than \$9,700 per week. She must hire at least 3 junior directors and at least 1 senior director. Which of the following systems of inequalities represents the conditions described if x is the number of junior directors and y is the number of senior directors?

- A) $640x + 880y \geq 9,700$
 $x + y \leq 10$
 $x \geq 3$
 $y \geq 1$
- B) $640x + 880y \leq 9,700$
 $x + y \geq 10$
 $x \geq 3$
 $y \geq 1$
- C) $640x + 880y \geq 9,700$
 $x + y \geq 10$
 $x \leq 3$
 $y \leq 1$
- D) $640x + 880y \leq 9,700$
 $x + y \leq 10$
 $x \leq 3$
 $y \leq 1$