

# Pre-AP Precalculus

## CR 2 – SAT PREP 6

\*\*\*CALCULATOR ALLOWED\*\*\*

1]

1 decagram = 10 grams  
1,000 milligrams = 1 gram

A hospital stores one type of medicine in 2-decagram containers. Based on the information given in the box above, how many 1-milligram doses are there in one 2-decagram container?

- A) 0.002
- B) 200
- C) 2,000
- D) 20,000

2] Which of the following is an equation of a circle in

the  $xy$ -plane with center  $(0, 4)$  and a radius with

endpoint  $\left(\frac{4}{3}, 5\right)$ ?

- A)  $x^2 + (y - 4)^2 = \frac{25}{9}$
- B)  $x^2 + (y + 4)^2 = \frac{25}{9}$
- C)  $x^2 + (y - 4)^2 = \frac{5}{3}$
- D)  $x^2 + (y + 4)^2 = \frac{3}{5}$

3] Katarina is a botanist studying the production of pears by two types of pear trees. She noticed that Type A trees produced 20 percent more pears than Type B trees did. Based on Katarina's observation, if the Type A trees produced 144 pears, how many pears did the Type B trees produce?

- A) 115
- B) 120
- C) 124
- D) 173

4]

Lengths of Fish (in inches)						
8	9	9	9	10	10	11
11	12	12	12	12	13	13
13	14	14	15	15	16	24

The table above lists the lengths, to the nearest inch, of a random sample of 21 brown bullhead fish. The outlier measurement of 24 inches is an error. Of the mean, median, and range of the values listed, which will change the most if the 24-inch measurement is removed from the data?

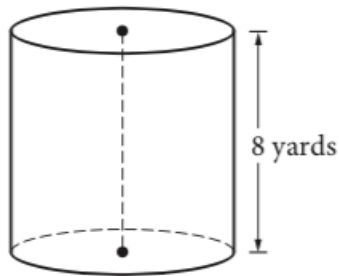
- A) Mean
- B) Median
- C) Range
- D) They will all change by the same amount.

5]  $h = -4.9t^2 + 25t$

The equation above expresses the approximate height  $h$ , in meters, of a ball  $t$  seconds after it is launched vertically upward from the ground with an initial velocity of 25 meters per second. After approximately how many seconds will the ball hit the ground?

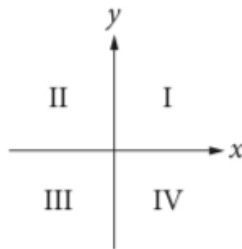
- A) 3.5
- B) 4.0
- C) 4.5
- D) 5.0

6]



A dairy farmer uses a storage silo that is in the shape of the right circular cylinder above. If the volume of the silo is  $72\pi$  cubic yards, what is the diameter of the base of the cylinder, in yards?

7]



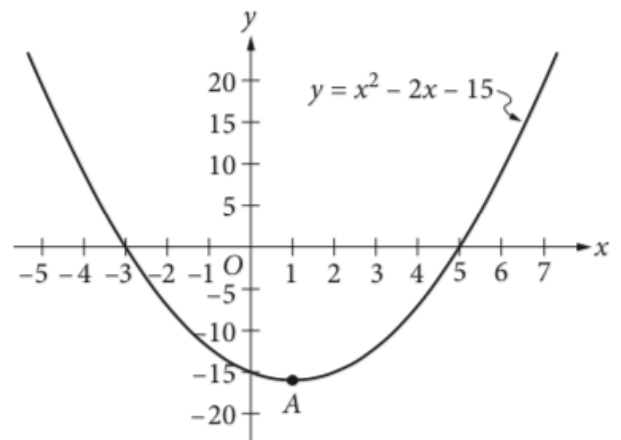
If the system of inequalities  $y \geq 2x + 1$  and  $y > \frac{1}{2}x - 1$  is graphed in the  $xy$ -plane above, which quadrant contains no solutions to the system?

- A) Quadrant II
- B) Quadrant III
- C) Quadrant IV
- D) There are solutions in all four quadrants.

- 8] For a polynomial  $p(x)$ , the value of  $p(3)$  is  $-2$ . Which of the following must be true about  $p(x)$  ?
- A)  $x - 5$  is a factor of  $p(x)$ .
  - B)  $x - 2$  is a factor of  $p(x)$ .
  - C)  $x + 2$  is a factor of  $p(x)$ .
  - D) The remainder when  $p(x)$  is divided by  $x - 3$  is  $-2$ .

- 9] Wyatt can husk at least 12 dozen ears of corn per hour and at most 18 dozen ears of corn per hour. Based on this information, what is a possible amount of time, in hours, that it could take Wyatt to husk 72 dozen ears of corn?

10]



Which of the following is an equivalent form of the equation of the graph shown in the  $xy$ -plane above, from which the coordinates of vertex  $A$  can be identified as constants in the equation?

- A)  $y = (x + 3)(x - 5)$
- B)  $y = (x - 3)(x + 5)$
- C)  $y = x(x - 2) - 15$
- D)  $y = (x - 1)^2 - 16$