

1

$$3x + x + \cancel{3} - 3 - 2 = 7 + \cancel{3} + \cancel{3}$$

In the equation above, what is the value of x ?

A) $-\frac{5}{7}$

B) 1

C) $\frac{12}{7}$

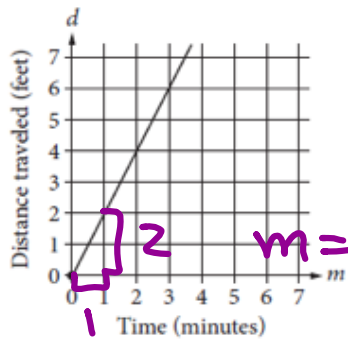
D) 3

$$4x - 5 = 7$$

$$4x = 12$$

$$x = 3$$

2



$$y = mx$$

$$\underline{d = 2m}$$

The graph above shows the distance traveled d , in feet, by a product on a conveyor belt m minutes after the product is placed on the belt. Which of the following equations correctly relates d and m ?

A) $d = 2m$

B) $d = \frac{1}{2}m$

C) $d = m + 2$

3

The formula below is often used by project managers to compute E , the estimated time to complete a job, where O is the shortest completion time, P is the longest completion time, and M is the most likely completion time.

$$E = \frac{O + 4M + P}{6}$$

$T \rightarrow P = ?$

Which of the following correctly gives P in terms of E , O , and M ?

A) $P = 6E - O - 4M$

B) $P = -6E + O + 4M$

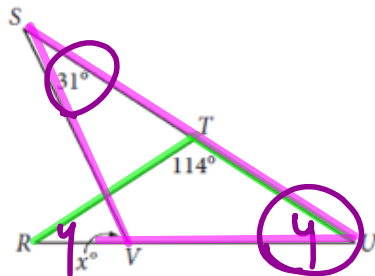
C) $P = \frac{O + 4M + E}{6}$

D) $P = \frac{O + 4M - E}{6}$

$$6E = O + 4M + P$$

$$6E - O - 4M = P$$

4



$$2y + 114 = 180$$

$$2y = 66$$

$$y = 33$$

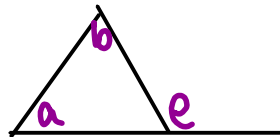
In the figure above, $RT = TU$. What is the value of x ?

A) 72

B) 66

C) 64

D) 58



$$a + b = e$$

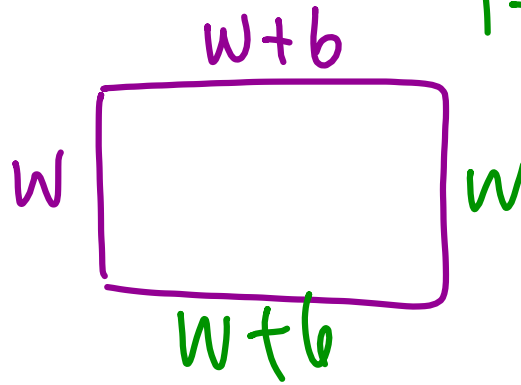
$$x = y + 31$$

$$= 33 + 31 = 64$$

5

The width of a rectangular dance floor is w feet. The length of the floor is 6 feet longer than its width. Which of the following expresses the perimeter, in feet, of the dance floor in terms of w ?

- A) $2w + 6$
- B) $4w + 12$
- C) $w^2 + 6$
- D) $w^2 + 6w$



6

Which of the following consists of the y -coordinates of all the points that satisfy the system of inequalities above?

- A) $y > 6$
- B) $y > 4$
- C) $y > \frac{5}{2}$
- D) $y > \frac{3}{2}$

$$y > 2x - 1 \quad \rightarrow \quad y + 1 > 2x > 5$$

$\left. \begin{array}{l} y > 2x - 1 \\ 2x > 5 \end{array} \right\} \rightarrow y + 1 > 5$

\downarrow
 $y > 4$

7

$$\sqrt{2x+6} + 4 = x + 3 \quad (x-1)(x-1) = x^2 - x - x + 1$$

What is the solution set of the equation above?

A) $\{-1\}$

B) $\{5\}$

C) $\{-1, 5\}$

D) $\{0, -1, 5\}$

$$\left(\sqrt{2x+6}\right)^2 = (x-1)^2$$

$$\begin{array}{r} 2x+6 = x^2 + 1 - 2x \\ -2x-6 \quad \quad \quad -6-2x \\ \hline 0 = x^2 - 4x - 5 \end{array}$$

$$0 = x^2 - 4x - 5 = (x-5)(x+1)$$

$$x = \textcircled{5}, -1$$

$$\begin{array}{l} \sqrt{2(5)+6} + 4 \\ = 8 = 5+3 \checkmark \end{array}$$

$$\begin{array}{l} \sqrt{2(-1)+6} + 4 \\ = 6 \neq -1+3 \end{array}$$