

Section R1

1. If  $(x-7)(x+3) = 0$ , what are the possible values of  $x$ ?

Answer:

By zero product property

$$\begin{array}{ccc} x-7=0 & \text{or} & x+3=0 & \text{so} \\ +7 & +7 & -3 & -3 \\ \hline x=7 & & x=-3 & \end{array}$$

Section 2.1

2. Find the distance between the points  $(4, -3)$  and  $(1, 1)$ 

Answer:

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} = \sqrt{(4-1)^2 + (-3-1)^2} \\ = \sqrt{3^2 + (-4)^2} = \sqrt{25} = 5$$

Section R2

3. Simplify the following expressions:

$$a^m a^n = a^{m+n}$$

$$(ab)^n = a^n b^n$$

$$(a^m)^n = a^{mn}$$

$$\frac{a^m}{a^n} = a^{m-n}$$

Section R8

4. Simplify using laws of exponents:

$$\sqrt{108} = \sqrt{2 \cdot 54} = \sqrt{2^2 \cdot 27} = \sqrt{2^2 \cdot 3^3} = 2 \cdot 3\sqrt{3} = 6\sqrt{3}$$

Section 1.2

5. Use the quadratic formula to find the solutions to the equation  $x^2 - 3x + 2 = 0$ .

Answer:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{-(-3) \pm \sqrt{(-3)^2 - 4 \cdot 1 \cdot 2}}{2 \cdot 1} = \frac{3 \pm \sqrt{9-8}}{2} \\ = \frac{3 \pm \sqrt{1}}{2} = \frac{3 \pm 1}{2} = \frac{4}{2} \text{ or } \frac{2}{2} = 2 \text{ or } 1$$

Section 1.3

6.  $\sqrt{-1}$  is equal to which of the following:  $i$ ,  $\pi$ , or does not exist?

Answer:

Section 2.3 7. What is the equation of the line between the points (4, -3) and (1, 1)?

Answer:  $m = \frac{-3-1}{4-1} = \frac{-4}{3}$

$$y = \frac{-4}{3}x + b$$

$$1 = \frac{-4}{3} \cdot 1 + b \quad b = 1 + \frac{4}{3} = \frac{7}{3} \quad y = \frac{-4}{3}x + \frac{7}{3}$$

Section R4 8. Simplify:  $(5x+3)(x+7)$

Answer:

$$\begin{aligned} &= 5x \cdot x + 5x \cdot 7 + 3 \cdot x + 3 \cdot 7 \\ &= 5x^2 + 35x + 3x + 21 \\ &= 5x^2 + 38x + 21 \end{aligned}$$