

## Answer Key

### Equation of a Line Worksheet 1

$$1) \ a = 5 \quad (-9, 6) \quad y = ax + b \quad y = 5x + 51$$

$$y = 5x + b$$

$$6 = 5(-9) + b$$

$$6 = -45 + b$$

$$6 + 45 = b$$

$$51 = b$$

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$$2) \ a = 4 \quad b = 8 \quad y = 4x + 8$$

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$$3) \ \begin{matrix} (4, 7) \\ x_1, y_1 \end{matrix} \quad \begin{matrix} (-2, 6) \\ x_2, y_2 \end{matrix} \quad a = \frac{y_2 - y_1}{x_2 - x_1} \quad y = ax + b \quad y = \frac{1}{6}x + \frac{19}{3}$$

$$y = \frac{1}{6}x + b$$

$$a = \frac{(6) - (7)}{(-2) - (4)}$$

$$7 = \frac{1}{6}(4) + b$$

$$a = \frac{-1}{-6}$$

$$7 = \frac{4}{6} + b$$

$$a = \frac{1}{6}$$

$$\frac{7}{1} = \frac{2}{3} + b$$

$$\frac{7x^3}{1^3} - \frac{2}{3} = b$$

$$\frac{21}{3} - \frac{2}{3} = b$$

$$\frac{19}{3} = b$$

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$$4) \ 4y - 8x = 9 \quad a = 2$$

$$\frac{4y}{4} = \frac{8x}{4} + \frac{9}{4}$$

$$y = 2x + \frac{9}{4}$$

$$\begin{aligned} 5) \quad a=6 \quad (-3,6) \quad & y=ax+b & y=6x+24 \\ & y=6x+b \\ & 6=6(-3)+b \\ & 6=-18+b \\ & 6+18=b \\ & 24=b \end{aligned}$$

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$$6) \quad a=5 \quad b=8 \quad y=5x+8$$

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$$\begin{aligned} 7) \quad (12,9) \quad (2,7) \quad & a = \frac{y_2 - y_1}{x_2 - x_1} & y=ax+b & y = \frac{1}{5}x + \frac{33}{5} \\ & a = \frac{(7)-(9)}{(2)-(12)} & y = \frac{1}{5}x + b \\ & a = \frac{-2}{-10} & 9 = \frac{1}{5}(12) + b \\ & a = \frac{1}{5} & 9 = \frac{12}{5} + b \\ & & \frac{45}{5} - \frac{12}{5} = b \\ & & \frac{33}{5} = b \end{aligned}$$

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$$\begin{aligned} 8) \quad 3y - 7x = 10 & a = \frac{7}{3} \\ \frac{3y}{3} = \frac{7x}{3} + \frac{10}{3} \\ y = \frac{7x}{3} + \frac{10}{3} \end{aligned}$$

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$$\begin{aligned} 9) \quad a=7 \quad (-9,4) \quad & y=ax+b & y=7x+67 \\ & 4=7(-9)+b \\ & 4=-63+b \\ & 4+63=b \\ & 67=b \end{aligned}$$

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$$10) \quad a=-8 \quad b=12 \quad y=-8x+12.$$