

# Algebra 2 Practice Test Solutions

1)  $m = -7$  through  $(2, 2)$

$$y = mx + b$$

$$2 = -7 \cdot 2 + b$$

$$2 = -14 + b$$

$$\begin{array}{r} +14 \\ \hline 16 = b \end{array}$$

$$16 = b$$

$$y = -7x + 16$$

2)  $(-6, -52)$   $(5, 36)$

$$m = \frac{36 - (-52)}{5 - (-6)} = \frac{88}{11} = 8$$

$$y = mx + b$$

$$36 = 8 \cdot 5 + b$$

$$36 = 40 + b$$

$$\begin{array}{r} -40 \\ \hline -4 = b \end{array}$$

$$-4 = b$$

$$y = 8x - 4$$

3)  $(2, 3)$

$$\begin{cases} x + y = 5 & 2 + 3 = 5 \checkmark \\ x - y = -1 & 2 - 3 = -1 \checkmark \end{cases}$$

YES

4)  $(4, 6)$

$$\begin{cases} 3x + y = 6 & 3 \cdot 4 + 6 = 12 + 6 = 18 \text{ No!} \\ 2x + 3y = -10 \end{cases}$$

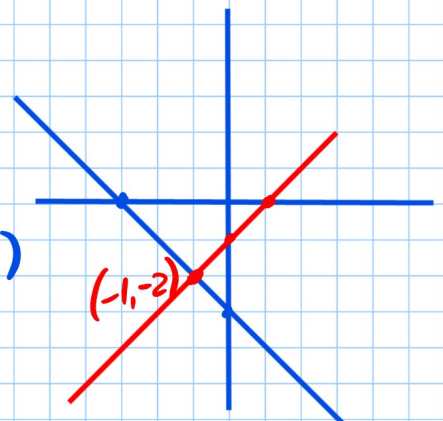
No

5)  $\begin{cases} x + y = -3 \\ x - y = 1 \end{cases}$

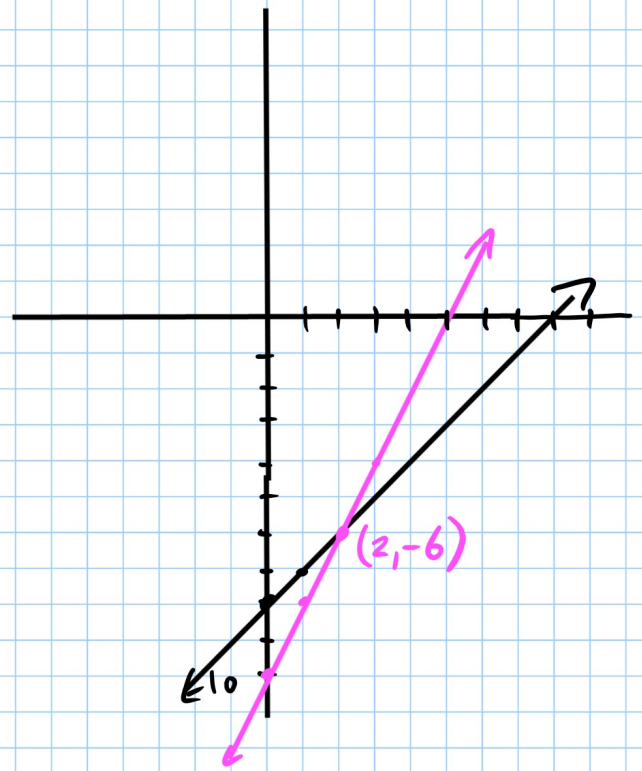
x-int  
 $x + 0 = -3$   
 $x = -3$

y-int  
 $0 + y = -3$   
 $y = -3$   
 $(0, -3)$

x-int y-int  
 $x - 0 = 1$   $0 - y = 1$   
 $x = 1$   $-y = 1$   
 $(1, 0)$   $y = -1$   $(0, -1)$



$$6) \begin{cases} y = x - 8 & m = \frac{1}{1} \quad b = -8 \\ y = 2x - 10 & m = \frac{2}{1} \quad b = -10 \end{cases}$$



$$7) \begin{cases} y = 2x + 4 \\ 2x + y = 20 \end{cases}$$

$$2x + 2x + 4 = 20$$

$$4x + 4 = 20$$

$$\begin{array}{r} -x \quad -4 \\ \hline 4x + 4 = 20 \\ -x \quad -4 \\ \hline 3x = 16 \end{array}$$

$$\frac{3x}{3} = \frac{16}{3}$$

$$x = \frac{16}{3}$$

$$y = 2 \cdot 4 + 4$$

$$y = 8 + 4$$

$$y = 12$$

$$\boxed{(4, 12)}$$

$$8) (x + 8y = 19) \cdot (-1) \Rightarrow -x - 8y = -19$$

$$9x + 8y = 43$$

$$\begin{array}{r} -x - 8y = -19 \\ 9x + 8y = 43 \\ \hline 8x = 24 \end{array}$$

$$\frac{8x}{8} = \frac{24}{8}$$

$$x = 3$$

$$3 + 8y = 19$$

$$\begin{array}{r} 3 + 8y = 19 \\ -3 \quad -3 \\ \hline 8y = 16 \end{array}$$

$$\frac{8y}{8} = \frac{16}{8}$$

$$\rightarrow y = 2$$

$$\boxed{(3, 2)}$$

$$9) \begin{cases} (6x+5y=12) \cdot 4 & \Rightarrow 24x+20y=48 \\ (-4x+2y=24) \cdot 6 & \Rightarrow \underline{-24x+12y=144} \end{cases}$$

$$\begin{array}{r} 32y = 192 \\ \hline 32 \quad 32 \end{array}$$

$$y = 6$$

$$6x + 5 \cdot 6 = 12$$

$$\begin{array}{r} 6x + 30 = 12 \\ \hline -30 \quad -30 \end{array}$$

$$\begin{array}{r} 6x = -18 \\ \hline 6 \quad 6 \end{array}$$

$$x = -3$$

$$\boxed{(-3, 6)}$$

$$10) \begin{cases} y = 2x + 5 \\ 3x + y = 15 \end{cases}$$

$$3x + 2x + 5 = 15$$

$$\begin{array}{r} 5x + 5 = 15 \\ \hline -5 \quad -5 \end{array}$$

$$\begin{array}{r} 5x = 10 \\ \hline 5 \quad 5 \end{array}$$

$$x = 2$$

$$y = 2 \cdot 2 + 5$$

$$y = 4 + 5$$

$$y = 9$$

$$\boxed{(2, 9)}$$

$$11) \begin{cases} x = \text{cost of adult} = \$25 \\ y = \text{cost of child} = \$21 \end{cases}$$

$$y = x - 4$$

$$8x + 2y = 242$$

$$8x + 2(x - 4) = 242$$

$$8x + 2x - 8 = 242$$

$$\begin{array}{r} 10x - 8 = 242 \\ \hline +8 \quad +8 \end{array}$$

$$\begin{array}{r} 10x = 250 \\ \hline 10 \quad 10 \end{array}$$

$$x = 25$$

$$y = 25 - 4$$

$$y = 21$$



$$12) \quad \begin{cases} x = 6\% \text{ investment} = \$8000 \\ y = 11\% \text{ investment} = \$2000 \end{cases}$$

$$\begin{aligned} -6(x+y=10000) &\Rightarrow -6x-6y=-60000 \\ 100(.06x+.11y=700) &\Rightarrow 6x+11y=70000 \end{aligned}$$

$$x+2000=10000$$

$$x=8000$$

$$\frac{5y}{5} = \frac{10000}{5}$$

$$y=2000$$

$$13) \quad \begin{cases} x = \text{pounds of peanuts} = 37.5 \text{ lbs} \\ y = \text{pounds of cashews} = 62.5 \text{ lbs} \end{cases}$$

$$-5(x+y=100)$$

$$5x+13y=1000$$

← \$10 × 100 pounds

$$-8x-5y=-500$$

$$5x+13y=1000$$

$$\frac{8y}{8} = \frac{500}{8}$$

$$y=62.5$$

$$x+62.5=100$$

$$x=37.5$$