Algebra 2 Practice Test Solutions

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

$y = mx + b$

$2 = -7 \cdot 2 + b$

$2 = -14 + b$

$+14 \quad +14$

$16 = b$

$\boxed{y = -7x + 16}$

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

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

$y = mx + b$

$36 = 8 \cdot 5 + b$

$36 = 40 + b$

$-40 \quad -40$

$-4 = b$

$\boxed{y = 8x - 4}$

3) $(2,3)$

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

$\boxed{\text{YES}}$

4) $(4,6)$

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

$\boxed{\text{NO}}$

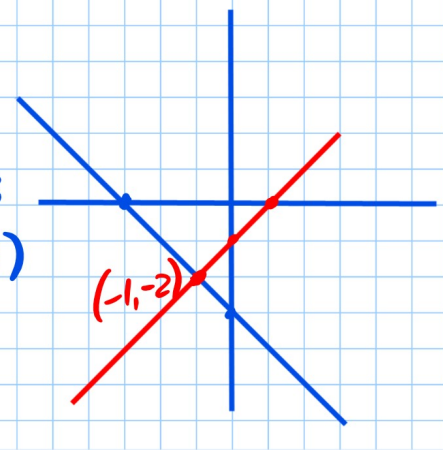
5) $\begin{cases} x + y = -3 \\ x - y = 1 \end{cases}$

x-int: $x + 0 = -3$, $x = -3$, $(-3,0)$

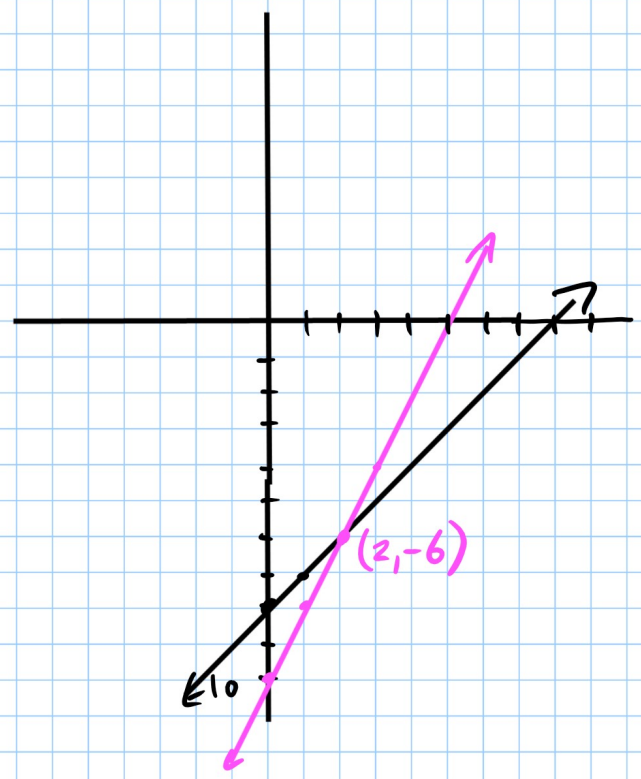
y-int: $0 + y = -3$, $y = -3$, $(0,-3)$

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

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



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

$2x + 2x + 4 = 20$

$4x + 4 = 20$

$-4 \quad -4$

$\frac{4x}{4} = \frac{16}{4}$

$x = 4$

$y = 2 \cdot 4 + 4$

$y = 8 + 4$

$y = 12$

$(4, 12)$

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

$9x + 8y = 43$

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

$x = 3$

$3 + 8y = 19$

$-3 \quad -3$

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

$y = 2$

$(3, 2)$

9) $(6x+5y=12)\,4 \Rightarrow 24x+20y=48$

$(-4x+2y=24)\,6 \Rightarrow -24x+12y=144$

$\frac{32y}{32}=\frac{192}{32}$

$y=6$

$6x+5\cdot 6=12$

$6x+30=12$

$-30 \quad -30$

$\frac{6x}{6}=\frac{-18}{6}$

$x=-3$

$(-3,6)$

10) $y=2x+5$

$3x+y=15$

$3x+2x+5=15$

$5x+5=15$

$-5 \quad -5$

$\frac{5x}{5}=\frac{10}{5}$

$x=2$

$y=2\cdot 2+5$

$y=4+5$

$y=9$

$(2,9)$

11) $x=$ cost of adult $=\$25$

$y=$ cost of child $=\$21$

$y=x-4$

$8x+2y=242$

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

$8x+2x-8=242$

$10x-8=242$

$+8 \quad +8$

$\frac{10x}{10}=\frac{250}{10}$

$x=25$

$y=25-4$

$y=21$

12) x = 6% investment = \$8000

y = 11% investment = \$2000

$-6(x+y = 10000) \Rightarrow -6x-6y = -60000$

$100(.06x+.11y = 700) \Rightarrow 6x+11y = 70000$

$5y = 10000$

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

$y = 2000$

$x+2000=10000$

$x = 8000$

13) x = pounds of peanuts = 37.5 lbs

y = pounds of cashews = 62.5 lbs

$-5(x+y=100)$

$5x+13y=1000$ ← \$10 × 100 pounds

$-5x-5y=-500$

$5x+13y=1000$

$8y = 500$

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

$y = 62.5$

$x+62.5=100$

$x = 37.5$