Solutions to Final Exam Review Packet

UNIT 2

① $3^x = 81$

$3^x = 3^4$

$\boxed{x = 4}$

② $2^x = \frac{1}{16}$

$2^x = \frac{1}{2^4}$

$2^x = 2^{-4}$

$\boxed{x = -4}$

③ $6^x - 8 = 28$

$+8 \quad +8$

$6^x = 36$

$6^x = 6^2$

$\boxed{x = 2}$

④ $\left(\frac{1}{25}\right)^{3x-9} = 5^{3x}$

$\left(\frac{1}{5^2}\right)^{3x-9} = 5^{3x}$

$5^{-2(3x-9)} = 5^{3x}$

$-6x + 18 = 3x$

$+6x \quad +6x$

$\frac{18}{9} = \frac{9x}{9}$

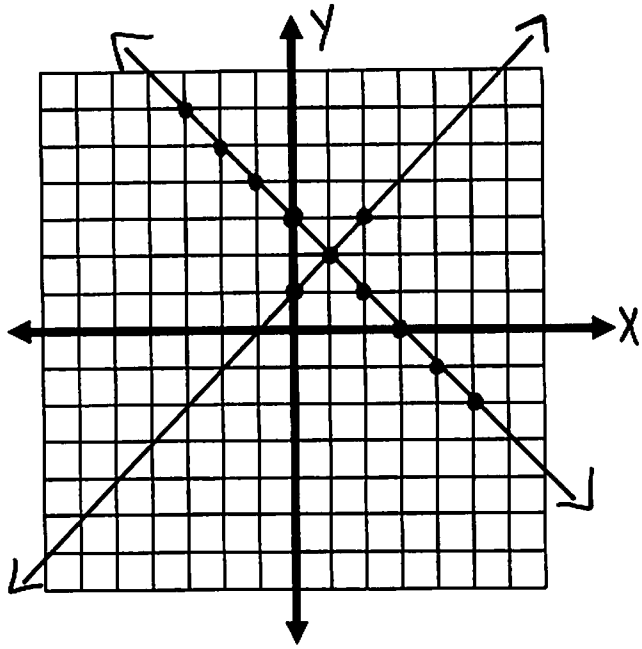
$2 = x$

$\boxed{x = 2}$

⑤ $y = -x + 3$

$y = x + 1$

$\boxed{(1, 2)}$



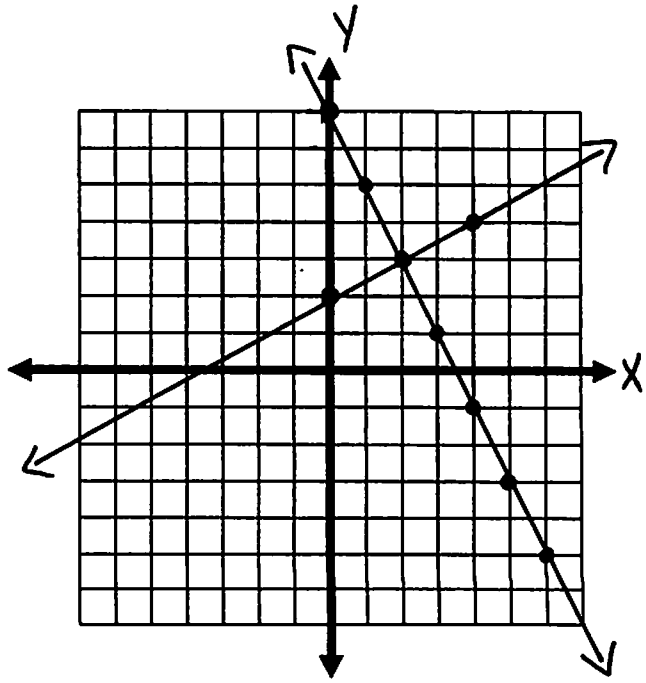
⑥ $y = -2x + 7$

$$\begin{array}{r} -3x + 6y = 12 \\ +3x \qquad\quad +3x \\ \hline \end{array}$$

$$\frac{6y}{6} = \frac{3x}{6} + \frac{12}{6}$$

$$y = \frac{1}{2}x + 2$$

$\boxed{(2, 3)}$



⑦ $y = 2x - 2$ •

$6x + 2y = 16$

$y = 2(2) - 2$

$y = 4 - 2$

$y = 2$

$6x + 2(2x - 2) = 16$

$6x + 4x - 4 = 16$

$10x - 4 = 16$

$+4 \quad +4$

$\frac{10x}{10} = \frac{20}{10}$

$x = 2$

$(2, 2)$

⑧ $4x - y = -6$

$y = 2x + 2$ •

$y = 2(-2) + 2$

$y = -4 + 2$

$y = -2$

$4x - (2x + 2) = -6$

$4x - 2x - 2 = -6$

$2x - 2 = -6$

$+2 \quad +2$

$\frac{2x}{2} = \frac{-4}{2}$

$x = -2$

$(-2, -2)$

(9) $5x - 3y = 7$

$+ \; x + 3y = 5$

$6x = 12$

$\frac{6x}{6} = \frac{12}{6}$

$x = 2$

$2 + 3y = 5$

$-2 \qquad -2$

$3y = 3$

$\frac{3y}{3} = \frac{3}{3}$

$y = 1$

$(2, 1)$

(10) $2(-3x + 3y = -9)$

$6x + 2y = 2$

$+ \; -6x + 6y = -18$

$8y = -16$

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

$y = -2$

$-3x + 3(-2) = -9$

$-3x - 6 = -9$

$+6 \qquad +6$

$-3x = -3$

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

$x = 1$

$(1, -2)$

(11) $A + B = 32$ •

$30A + 35B = 1050$

$A + B = 32$

$-B \quad -B$

$A = 32 - B$

$30(32 - B) + 35B = 1050$

$960 - 30B + 35B = 1050$

$960 + 5B = 1050$

$-960 \qquad -960$

$\frac{5B}{5} = \frac{90}{5}$

$B = 18$

18 pairs of Brand B

(12) $-3(S + g = 350)$

$3S + 5g = 1450$

$+ \quad -3S - 3g = -1050$

$\frac{2g}{2} = \frac{400}{2}$

$g = 200$

$S + 200 = 350$

$-200 \quad -200$

$S = 150$

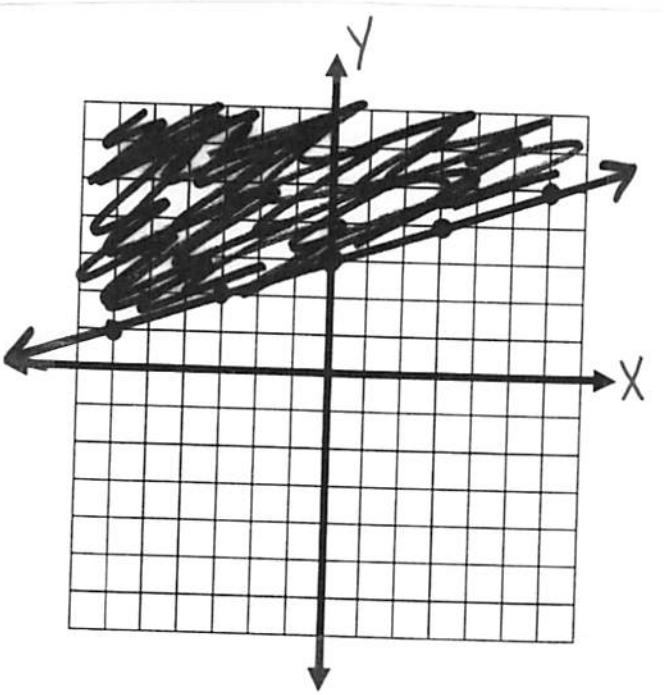
150 student tickets were sold

(13) $x - 3y \leq -9$

$-x \qquad\qquad -x$

$$\frac{-3y}{-3} \leq \frac{-x}{-3} \frac{-9}{-3}$$

$$y \geq \frac{1}{3}x + 3$$

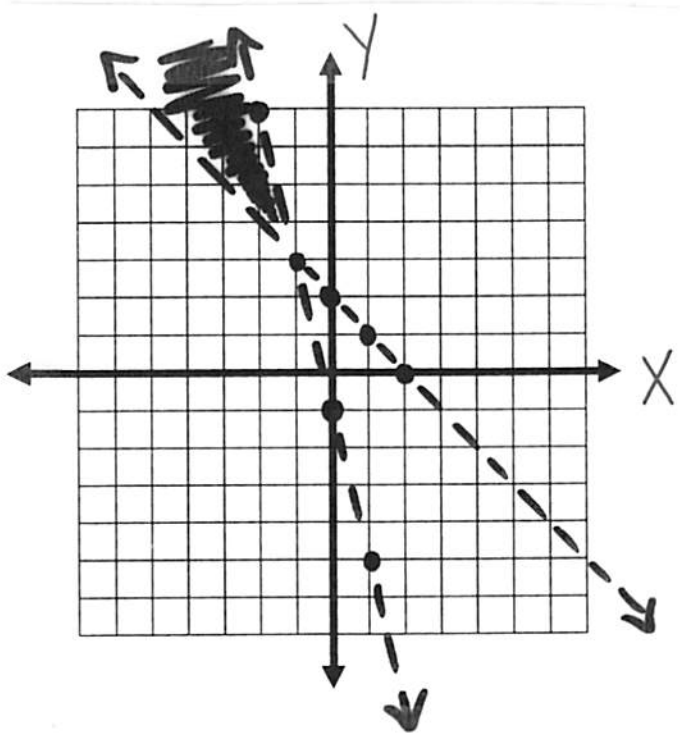


(14) $y > -x + 2$

$4x + y < -1$

$-4x \qquad -4x$

$y < -4x - 1$



(15) Given

Distributive Property

Simplify or Combine Like Terms

Subtraction Property of =

Division Property of =