Sol'n

Unit 4: Linear Equations Review Package

1. **Solve each equation:**

a) $3(x-2)+4(x+1)=19$

b) $2(x+3)-(x-2)=12$

c) $\frac{x-1}{3}=\frac{2x}{7}$

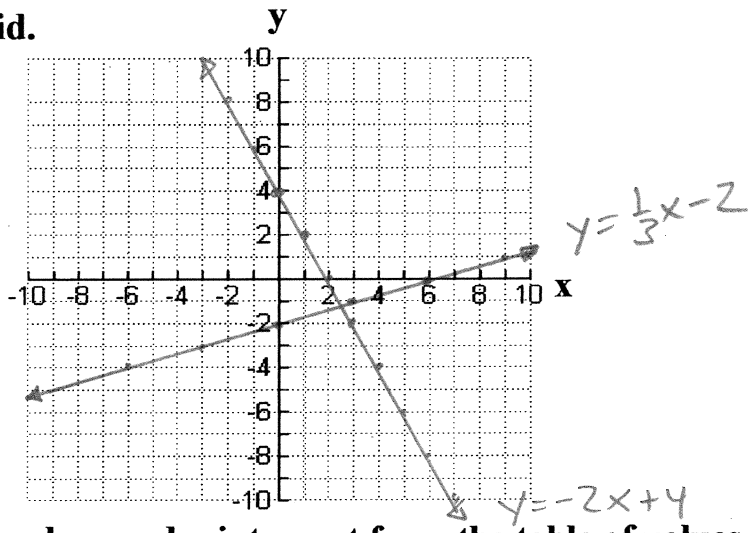
d) $\frac{x}{5}+\frac{x}{3}=\frac{16}{15}$

2. **Determine the equation of the line that passes through the point (1, -3) and has a slope of 2.**

3. **Determine the equation of the line that passes through the points (2, 7) and (5, 1).**

4. **Determine the slope and y-int of the line that has the equation** $4x+2y=16$**.**

5. **Graph the lines** $y=-2x+4$ **and** $y=\frac{1}{3}x-2$ **on the following Cartesian grid.**



6. **Determine the slope and y-intercept from the table of values**

slope (m) = _____

y-int (b) = _____

x	y
-4	5
-2	8
0	11
2	14
4	17

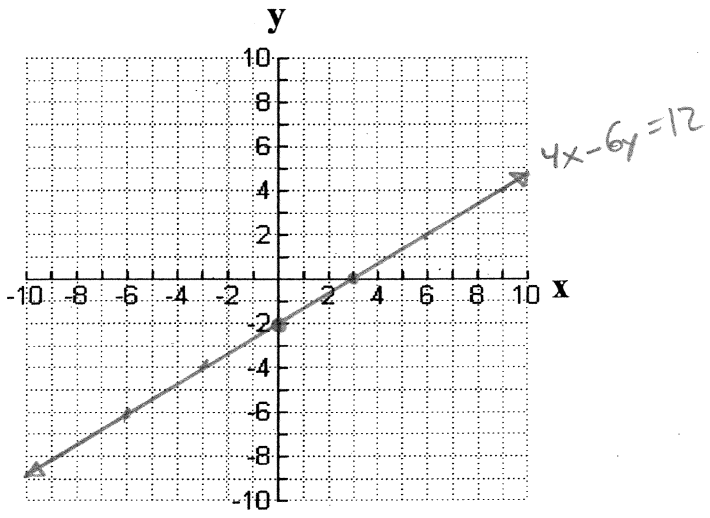
7. **Graph the line** $4x - 6y = 12$ **using x and y intercepts.**

x-int($y=0$ **)** **y-int(** $x=0$ **)**

$4x - 6(0) = 12$ $\quad$ $4(0) - 6y = 12$

$\frac{4x}{4} = \frac{12}{4}$ $\quad$ $\frac{-6y}{-6} = \frac{12}{-6}$

$x\text{-int} = 3$ $\quad$ $y\text{-int} = -2$



8. **The cost to produce a school yearbook is given by the equation C = 2n + 150, where C dollars is the cost to produce n yearbooks.**

   a) **What is the cost to produce 400 yearbooks?**

   b) **How many yearbooks can be produced for $1270?**

9. **A conference is being held at the Cayley Math Hall. To rent this venue, it costs $1500 plus $55/person to cover the costs of the meal.**

   a) **Create an equation to model the rental cost of the Hall. Be sure to include 'let' statements for the dependent and independent variables.**

   b) **Use your equation to determine the cost to rent the hall for 180 mathematicians.**

   c) **How many mathematicians can attend the hall if there is a set budget of $10025?**

10. **John purchases 2 bags of milk and 3 loafs of bread for $15.00. If one bag of milk costs $2.50 more than one loaf of bread, how much does one loaf of bread cost?**

Linear Equations Review Package

1a) $3(x-2)+4(x+1)=19$

$3x-6+4x+4=19$

$7x-2=19$

$7x=19+2$

$\frac{7x}{7}=\frac{21}{7}$

$\boxed{x=3}$

b) $2(x+3)-(x-2)=12$

$2x+6-x+2=12$

$x+8=12$

$x=12-8$

$\boxed{x=4}$

c) $\frac{x-1}{3}=\frac{2x}{7}$

$7(x-1)=3(2x)$

$7x-7=6x$

$7x-6x=7$

$\boxed{x=7}$

d) $\frac{x}{8}+\frac{x}{8}=\frac{16}{15}$ (15, 15, 15)

$3x+5x=16$

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

$\boxed{x=2}$

2. point $\rightarrow (1,-3)$ (x, y)

slope $(m) \rightarrow 2$

$y=mx+b$

$-3=2(1)+b$

$-b=2+3$

$\frac{-b}{-1}=\frac{5}{-1}$

$b=-5$

Eq$^{\uparrow}$: $\boxed{y=2x-5}$

3. point $\rightarrow (2,7)$ (x_1, y_1)

point $\rightarrow (5,1)$ (x_2, y_2)

$m=\frac{y_2-y_1}{x_2-x_1}$

$=\frac{1-7}{5-2}$

$=\frac{-6}{3}$

$m=-2$

$y=mx+b$

$7=-2(2)+b$

$-b=-4-7$

$\frac{-b}{-1}=\frac{-11}{-1}$

$b=11$

Eq$^{\uparrow}$: $\boxed{y=-2x+11}$

4. $4x + 2y = 16$

change to $y = mx + b$ form

$\frac{2y}{2} = \frac{-4x}{2} + \frac{16}{2}$

$\boxed{y = -2x + 8}$

slope $= -2$; y-int $= 8$

5. On page.

6. slope $= \frac{3}{2}$

y-int $= 11$

	x	y	
2<	-4	5	>3
2<	-2	8	>3
2<	0	(11)	>3 ← y-int
2<	2	14	>3
2<	4	17	>3

7. On page.

8. a) set $n = 400$

$C = 2(400) + 150$

$= 800 + 150$

$C = \$950$

b) set $C = \$1270$

$1270 = 2n + 150$

$-2n = 150 - 1270$

$\frac{-2n}{-2} = \frac{-1120}{-2}$

$n = 560$ books

9. a) Let C represent the cost to rent the hall
Let n represent the number of guests
rate = \$55/person
i.v. = \$1500

$$\boxed{C = 55n + 1500}$$

b) Set $n = 180$

$$C = 55(180) + 1500$$
$$= 9900 + 1500$$
$$\boxed{C = \$11400}$$

c) Set $C = 1002.5$

$$1002.5 = 55n + 1500$$
$$-55n = 1500 - 1002.5$$
$$\frac{-55n}{-55} = \frac{-852.5}{-55}$$
$$\boxed{n = 155 \text{ guests}}$$

10. Let x represent the cost of one loaf
" $x + 2.50$ " the cost of one bag of milk

$$2(\text{cost of milk}) + 3(\text{cost of bread}) = 15.00$$
$$2(x) + 3(x + 2.50) = 15.00$$
$$2x + 3x + 7.50 = 15.00$$
$$5x + 7.50 = 15.00$$
$$5x = 15.00 - 7.50$$
$$\frac{5x}{5} = \frac{7.50}{5}$$
$$\boxed{x = 1.50}$$

One loaf of bread costs \$1.50