

1.) Mr. Bruell is going to order shirts for the Expanded Mathematics Mathletes. The shirts will have the Mathletes logo on the front and individual names printed on the back. He asks two local companies for their prices so he and the Mathletes can determine the best price for their shirts.

“LogoDogz” will charge \$21.50 per shirt and “Create My Tee” will charge a one-time printing fee of \$70 plus \$18 per shirt.



A.) Define your variables and write an equation for the cost for each company to print the shirt.

Variables:  $X = \# \text{ of shirts}$   
 $Y = \text{total cost}$

LogoDogz:  $Y = 21.50X$

Create My Tee:  $Y = 18X + 70$

B.) Complete the following tables for each company

LogoDogz		Create My Tee	
# of Shirts	Total Cost	# of Shirts	Total Cost
0	0	0	70
10	215	10	250
20	430	20	430

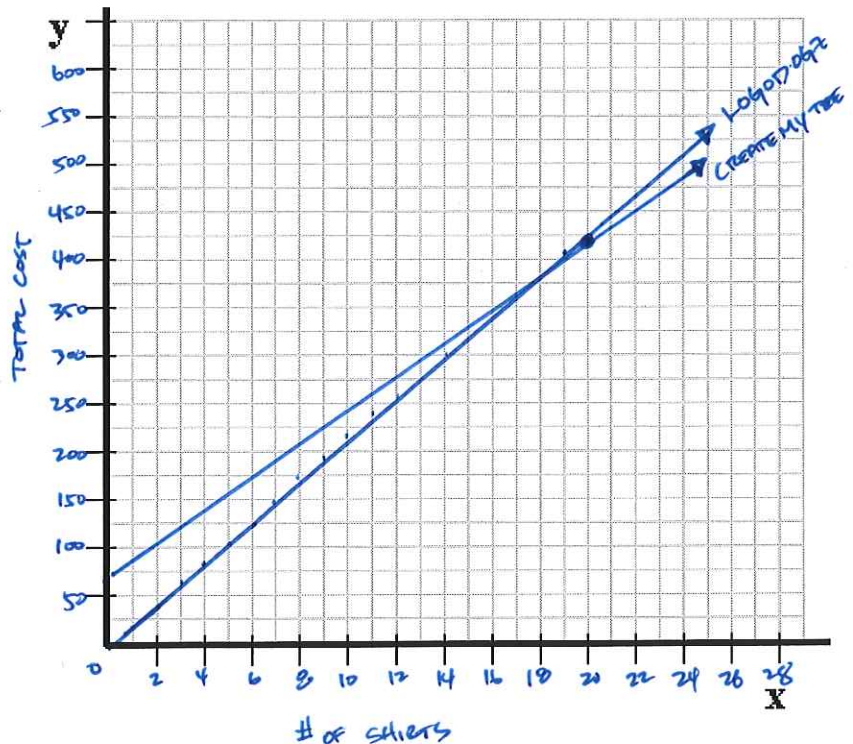
C.) Graph both equations using the points you found in part B. Be sure to scale your axes appropriately. Also, label each equation.

LogoDogz Equation:  $Y = 21.50X$

$m = 21.50$        $b = 0$

Create My Tee Equation:  $Y = 18X + 70$

$m = 18$        $b = 70$



- D.) Mr. Bruell needs to order 30 shirts for the Mathletes. According to the graph, which company should Mr. Bruell use if he's trying to save money? Explain how you know, *by referencing the graph*.

CREATE MY TEE

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- E.) For how many t-shirts sold would each company's total cost be the same and what is that cost? (Show Algebraically)

$$\begin{array}{l}
 \text{Logo Dogz} \\
 Y = 21.50X \\
 \text{CREATE MY TEE} \\
 Y = 18X + 70
 \end{array}
 \left. \vphantom{\begin{array}{l} \text{Logo Dogz} \\ Y = 21.50X \\ \text{CREATE MY TEE} \\ Y = 18X + 70 \end{array}} \right\}
 \begin{array}{l}
 21.50X = 18X + 70 \\
 3.5X = 70 \\
 \boxed{X = 20}
 \end{array}$$

- 2.) After their singing careers took an awkwardly bad turn, Miley Cyrus and Taylor Swift decided to join forces and open a small thrift store called "Shake It Off Wrecking Ball". If Miley sells 4 tank tops and 3 flowing skirts for a total of \$45.00, and at the same time, Taylor sells 2 tank tops and 7 flowing skirts for a total of \$72.00. During checkout they hear "Oops...I Did It Again" on the radio which triggered all sorts of emotions and feelings, and more importantly the reason why they became singers in the first place. This sudden excitement created them to forget what each tank top and flowing skirt cost. Can you help Miley and Taylor figure out what each piece of clothing cost?

$$\begin{array}{l}
 \text{LET } X = \# \text{ OF TANK TOPS} \\
 Y = \# \text{ OF FLOWING SKIRTS}
 \end{array}
 \left. \vphantom{\begin{array}{l} \text{LET } X = \# \text{ OF TANK TOPS} \\ Y = \# \text{ OF FLOWING SKIRTS} \end{array}} \right\}
 \begin{array}{l}
 \text{MILEY: } 4X + 3Y = 45 \\
 \text{TAYLOR: } 2X + 7Y = 72 \quad (-2)
 \end{array}
 \left. \vphantom{\begin{array}{l} \text{MILEY: } 4X + 3Y = 45 \\ \text{TAYLOR: } 2X + 7Y = 72 \quad (-2) \end{array}} \right\}
 \begin{array}{l}
 4X + 3Y = 45 \\
 -4X - 14Y = -144 \\
 \hline
 -11Y = -99 \\
 \boxed{Y = 9} \\
 4X + 3(9) = 45 \\
 4X + 27 = 45 \\
 4X = 18 \rightarrow \boxed{X = 4.5}
 \end{array}$$

- 3.) Write an equation of a line in slope - intercept form that is perpendicular to  $3x - 4y = 12$  and pass through the point  $(6, -2)$ .

$$\begin{array}{l}
 3X - 4Y = 12 \\
 -4Y = -3X + 12 \\
 Y = \frac{3}{4}X - 3 \\
 \perp m = -\frac{4}{3} \\
 (6, -2)
 \end{array}
 \left. \vphantom{\begin{array}{l} 3X - 4Y = 12 \\ -4Y = -3X + 12 \\ Y = \frac{3}{4}X - 3 \\ \perp m = -\frac{4}{3} \\ (6, -2) \end{array}} \right\}
 \begin{array}{l}
 Y - Y_1 = m(X - X_1) \\
 Y - (-2) = -\frac{4}{3}(X - 6) \\
 Y + 2 = -\frac{4}{3}X + 8 \\
 \boxed{Y = -\frac{4}{3}X + 6}
 \end{array}
 \text{ or }
 \begin{array}{l}
 Y = mX + b \\
 -2 = -\frac{4}{3}(6) + b \\
 -2 = -8 + b \\
 6 = b \\
 \boxed{Y = -\frac{4}{3}X + 6}
 \end{array}$$

Simplify.

$$4.) \quad -2 \begin{bmatrix} -6 & 4 & 3 \\ -2 & -2 & 5 \end{bmatrix} + \begin{bmatrix} 4 & -5 & 9 \\ 3 & -6 & -3 \end{bmatrix}$$

$$= \begin{bmatrix} 12 & -8 & -6 \\ 4 & 4 & -10 \end{bmatrix} + \begin{bmatrix} 4 & -5 & 9 \\ 3 & -6 & -3 \end{bmatrix}$$

$$= \begin{bmatrix} 16 & -13 & 3 \\ 7 & -2 & -13 \end{bmatrix}$$

$$5.) \quad -4 \left( \begin{bmatrix} -2 & -3 \\ 3 & 4 \\ 5 & -7 \end{bmatrix} - \begin{bmatrix} -2 & -3 \\ 12 & 4 \\ -9 & -2 \end{bmatrix} \right)$$

$$= -4 \begin{bmatrix} 0 & 0 \\ -9 & 0 \\ 14 & -5 \end{bmatrix}$$

$$= \begin{bmatrix} 0 & 0 \\ 36 & 0 \\ 56 & 20 \end{bmatrix}$$

$$6.) \quad \sqrt{20x^5y^{11}}$$

$$= \sqrt{4x^4y^{10}} \cdot \sqrt{5xy}$$

$$= \boxed{2x^2y^5 \sqrt{5xy}}$$

$$7.) \quad \left( \frac{36x^4}{5y^6} \right)^{-\frac{3}{2}}$$

$$= \frac{36^{(\frac{3}{2})} x^{4(-\frac{3}{2})}}{5^{(-\frac{3}{2})} y^{6(-\frac{3}{2})}}$$

$$= \frac{5^{(\frac{3}{2})} y^{9(\frac{3}{2})}}{36^{(\frac{3}{2})} x^{6(\frac{3}{2})}}$$

$$= \boxed{\frac{5\sqrt{5} y^9}{216 x^9}}$$

$$8.) \quad (-2x^3y^{-4})(5x^2y^3)^2$$

$$= (-2x^3y^{-4})(25x^4y^6)$$

$$= \boxed{-50x^7y^2}$$

9.) Your parents kindly loaned you some money to help you buy a car. You pay them back regularly according to the standards your parents established. This can be seen in the table below.

X	Y
Number of months	Amount of debt
2	\$2240
4	\$1980
7	\$1590
10	\$1070

Part 1 – Write a linear function that models this data.

$$\left. \begin{matrix} (2, 2240) \\ (10, 1070) \end{matrix} \right\} m = \frac{1070 - 2240}{10 - 2} = \frac{-1170}{8} = \frac{-585}{4} = -146.25$$

Part 2 – How much money will you owe after 16 months?

$$X=16 \left\{ \begin{matrix} Y = -146.25X + 2532.5 \\ Y = -146.25(16) + 2532.5 \end{matrix} \right.$$

$$\boxed{Y = 192.5}$$

$$\left. \begin{matrix} (10, 1070) \\ m = -\frac{585}{4} \end{matrix} \right\} \begin{matrix} Y - Y_1 = m(x - x_1) \\ Y - 1070 = -146.25(x - 10) \\ Y - 1070 = -146.25x + 1462.5 \end{matrix}$$

$$\boxed{Y = -146.25X + 2532.5}$$

Part 3 – How long will it take you until you are able to pay off your debt?

$$Y=0 \left\{ \begin{matrix} 0 = -146.25X + 2532.2 \\ -2532.2 = -146.25X \end{matrix} \right.$$

$$\frac{-2532.2}{-146.25} = X$$

$$\boxed{17.3 = X}$$

$$Y = mx + b$$

$$1070 = -\frac{585}{4}(10) + b$$

$$1070 = -1462.5 + b$$

$$2532.5 = b$$

$$\boxed{Y = -\frac{585}{4}X + 2532.5}$$

- 10.) In one week, a music store sold 9 guitars for a total of \$3611. Electric guitars sold for \$479 each and acoustic guitars sold for \$339 each. How many of each type of guitar were sold?

LET  $x = \#$  OF ELECTRIC GUITARS  
 $y = \#$  OF ACOUSTIC GUITARS

$$\begin{cases} x + y = 9 \\ 479x + 339y = 3611 \end{cases}$$

$$\begin{aligned} (-479) \cdot (x + y) &= (-479) \cdot 9 \\ -479x - 479y &= -4311 \\ 479x + 339y &= 3611 \end{aligned}$$

$$-140y = -700$$

$$\boxed{y = 5}$$

$$x + y = 9$$

$$x + 5 = 9$$

$$\boxed{x = 4}$$

- 11.) Simplify.

$$(5 - 2i)(3i + 4)$$

$$= 15i + 20 - 6i^2 - 8i$$

$$= 15i + 20 - 6(-1) - 8i$$

$$= 15i + 20 + 6 - 8i$$

$$= \boxed{26 + 7i}$$

- 12.) Simplify.

$$(4i + 3)^2$$

$$= (4i + 3)(4i + 3)$$

$$= 16i^2 + 12i + 12i + 9$$

$$= 16(-1) + 12i + 12i + 9$$

$$= -16 + 12i + 12i + 9$$

$$= \boxed{-7 + 24i}$$

- 13.) Simplify.

$$2\sqrt{3}(4 - 2\sqrt{6})$$

$$= 8\sqrt{3} - 4\sqrt{18}$$

$$= 8\sqrt{3} - 4\sqrt{9 \cdot 2}$$

$$= 8\sqrt{3} - 4 \cdot 3\sqrt{2}$$

$$= \boxed{8\sqrt{3} - 12\sqrt{2}}$$

- 14.) Simplify.

$$(2x^2 - 4x + 7) - 4(5 - 6x^2 + 3) - (11x^2 - 3)$$

$$= 2x^2 - 4x + 7 - 20 + 24x^2 - 12 - 11x^2 + 3$$

$$= \boxed{15x^2 - 4x - 22}$$

- 15.) Simplify.

$$(2x - 5y)^2$$

$$= (2x - 5y)(2x - 5y)$$

$$= 4x^2 - 10xy - 10xy + 25y^2$$

$$= \boxed{4x^2 - 20xy + 25y^2}$$

- 16.) Simplify.

$$(5a^3 + 7) - 4(2 - 6a^2 + 3a) - 4(2a^3 - 8)$$

$$= 5a^3 + 7 - 8 + 24a^2 - 12a - 8a^3 + 32$$

$$= \boxed{-3a^3 + 24a^2 - 12a + 24}$$

- 17.) Simplify.

$$(3w - 2)(2w^2 - 7w - 2)$$

$$= 6w^3 - 21w^2 - 6w - 4w^2 + 14w + 4$$

$$= \boxed{6w^3 - 25w^2 + 8w + 4}$$

25.) Which of the following has a slope of -1?

Equation 1:  $y - 3 = 2(x - 3) \rightarrow y - 3 = 2x - 6$   
 $y = 2x - 3$

Equation 2:  $x + y - 4 = 0 \rightarrow y = -x + 4$

Equation 3:  $4x + 4y = 8 \rightarrow 4y = -4x + 8$   
 $y = -x + 2$

- a.) Equation 1 only      b.) Equation 2 only      c.) Equation 3 only  
 d.) Equations 2 & 3      e.) Equations 1, 2 & 3

26.) Which of the following have a slope of -1?

Graph:

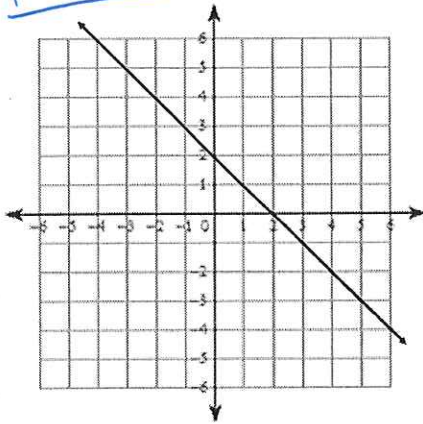


Table:

x	y
-3	-4
-1	-6
1	-8
3	-10

Points:

$x_1, y_1, x_2, y_2$   
 $(-6, -12), (5, -1)$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-1 - (-12)}{5 - (-6)} = \frac{11}{11} = 1$$

$$m = \frac{\Delta y}{\Delta x} = \frac{-2}{2} = -1$$

- a.) The graph only      b.) The table only      c.) The points only  
 d.) The table and the points      e.) The graph and the table

27.) Simplify.

$$\begin{aligned} & 3\sqrt{8} + 2\sqrt{54} - 2\sqrt{24} - 3\sqrt{2} \\ &= 3\sqrt{4}\sqrt{2} + 2\sqrt{9}\sqrt{6} - 2\sqrt{4}\sqrt{6} - 3\sqrt{2} \\ &= 3(2)\sqrt{2} + 2(3)\sqrt{6} - 2(2)\sqrt{6} - 3\sqrt{2} \\ &= 6\sqrt{2} + 6\sqrt{6} - 4\sqrt{6} - 3\sqrt{2} \\ &= \boxed{3\sqrt{2} + 2\sqrt{6}} \end{aligned}$$

28.) Simplify.

$$\begin{aligned} & 2\sqrt{128} - 3\sqrt{72} - 5\sqrt{40} + \sqrt{200} \\ &= 2\sqrt{64}\sqrt{2} - 3\sqrt{36}\sqrt{2} - 5\sqrt{4}\sqrt{10} + \sqrt{100}\sqrt{2} \\ &= 2(8)\sqrt{2} - 3(6)\sqrt{2} - 5(2)\sqrt{10} + 10\sqrt{2} \\ &= 16\sqrt{2} - 18\sqrt{2} - 10\sqrt{10} + 10\sqrt{2} \\ &= \boxed{8\sqrt{2} - 10\sqrt{10}} \end{aligned}$$

18.) Evaluate.

If  $f(t) = 4t^2 - 2t + 7$ ; find  $f(m+5)$

$$\begin{aligned} &= 4(m+5)^2 - 2(m+5) + 7 \\ &= 4(m+5)(m+5) - 2(m+5) + 7 \\ &= 4(m^2 + 10m + 25) - 2m - 10 + 7 \\ &= 4m^2 + 40m + 100 - 2m - 10 + 7 \\ &= \boxed{4m^2 + 38m + 97} \end{aligned}$$

19.) Evaluate.

If  $f(y) = -2y^2 - 2y + 5$ ; find  $f(y-3)$

$$\begin{aligned} &= -2(y-3)^2 - 2(y-3) + 5 \\ &= -2(y-3)(y-3) - 2(y-3) + 5 \\ &= -2(y^2 - 6y + 9) - 2y + 6 + 5 \\ &= -2y^2 + 12y - 18 - 2y + 6 + 5 \\ &= \boxed{-2y^2 - 10y - 7} \end{aligned}$$

20.) Simplify.

$$\begin{aligned} &\sqrt{20x^3y^4z^9} \\ &= \sqrt{4x^2y^4z^8} \cdot \sqrt{5xz} \\ &= \boxed{2xy^2z^4\sqrt{5xz}} \end{aligned}$$

21.) Simplify.

$$\begin{aligned} &\sqrt[3]{250x^3y^2z^7} \\ &= \sqrt[3]{125x^3z^6} \cdot \sqrt[3]{2y^2z} \\ &= \boxed{5xz^2\sqrt[3]{2y^2z}} \end{aligned}$$

23.) Simplify.

$$\begin{aligned} &\sqrt[3]{96xy^5} \\ &= \sqrt[3]{8y^3} \sqrt[3]{12xy^2} \\ &= \boxed{2y\sqrt[3]{12xy^2}} \end{aligned}$$

24.) Kristin was charting how much money she spent for her cable TV. Her cable provider charges a monthly fee in addition to an initial sign-up fee. He knows that after 3 months he has paid a total of \$190 and after 9 months he has paid a total of \$430.

$$\begin{array}{l} \text{(MONTHS, COST)} \\ \text{(x, y)} \end{array} \rightarrow \begin{array}{l} (3, 190) \\ (9, 430) \end{array}$$

a) Greg made the two total payments into points. The two points are (3, 190) and (9, 430). Find the slope between the two points. Be sure to show your work.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{430 - 190}{9 - 3} = \frac{240}{6} = \boxed{40}$$

b) Write an equation in slope-intercept form to model his payments.

$$\begin{array}{l} m = 40 \\ (3, 190) \end{array} \left. \vphantom{\begin{array}{l} m = 40 \\ (3, 190) \end{array}} \right\} \begin{array}{l} y - y_1 = m(x - x_1) \\ y - 190 = 40(x - 3) \\ y - 190 = 40x - 120 \\ \boxed{y = 40x + 70} \end{array} \quad \text{or} \quad \begin{array}{l} y = mx + b \\ 190 = 40(3) + b \\ 190 = 120 + b \\ 70 = b \\ \boxed{y = 40x + 70} \end{array}$$

d) How much was the initial sign-up fee?

$$\begin{array}{l} x = 0 \\ y = 40x + 70 \end{array} \left. \vphantom{\begin{array}{l} x = 0 \\ y = 40x + 70 \end{array}} \right\} \begin{array}{l} y = 40(0) + 70 \\ \boxed{y = 70} \end{array}$$

e) How much does he pay monthly?

$$\begin{array}{l} x = 1 \\ y = 40x + 70 \end{array} \left. \vphantom{\begin{array}{l} x = 1 \\ y = 40x + 70 \end{array}} \right\} \begin{array}{l} y = 40(1) + 70 \\ y = 40 + 70 \\ \boxed{y = 110} \end{array}$$

- 29.) Janet is trying to decide which cell phone provider she will go through for her new iPhone 5C. Verizon Wireless has a plan that is \$60 a month and \$0.15 for every text message sent. AT&T has a plan that is \$70 a month and \$0.05 for every text message sent.
- A.) Write an equation that models her monthly bill if she went through Verizon Wireless. (Use  $M$  for messages and  $C$  for the total cost)

$$C = 0.15M + 60$$

- B.) Write an equation that models her monthly bill if she went through AT&T. (Use  $M$  for messages and  $C$  for the total cost)

$$C = 0.05M + 70$$

- C.) Using the equations found in parts A & B, create and solve a system of equations to determine how many text messages would need to be sent in order for her bill to be the same for both companies?

$$\begin{array}{l} C = 0.15M + 60 \\ C = 0.05M + 70 \end{array} \quad \left. \vphantom{\begin{array}{l} C = 0.15M + 60 \\ C = 0.05M + 70 \end{array}} \right\} \begin{array}{l} 0.15M + 60 = 0.05M + 70 \\ 0.10M = 10 \\ \boxed{M = 100} \end{array}$$

- D.) If Janet were to send 200 text messages, which company would be the better deal? Explain your reasoning and USE COMPLETE SENTENCES.

AT&T

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$$\begin{array}{l} M = 200 \end{array} \left. \vphantom{M = 200} \right\} \begin{array}{l} \text{VERIZON} \\ C = 0.15(200) + 60 \\ C = 90 \end{array} \quad \begin{array}{l} \text{AT\&T} \\ C = 0.05(200) + 70 \\ \boxed{C = 80} \end{array}$$

Solve. Express your answer on the number line provided.

30.)  $-2(3v - 2) - (3 + 4v) \geq -59$

$$-6v + 4 - 3 - 4v \geq -59$$

$$-10v + 1 \geq -59$$

$$-10v \geq -60$$

$$v \leq 6$$



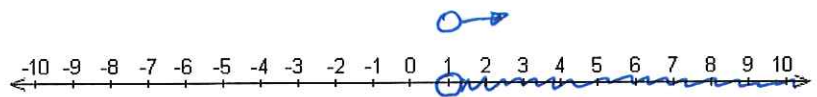
31.)  $12 - 3(4m + 2) < 4 - 10m$

$$12 - 12m - 6 < 4 - 10m$$

$$-12m + 6 < 4 - 10m$$

$$-2m < -2$$

$$m > 1$$



Simplify.

32.)  $3\frac{1}{2} - \frac{3}{4} + 2\frac{3}{4} - \frac{5}{6}$

$$= \frac{7}{2} - \frac{3}{4} + \frac{11}{4} - \frac{5}{6}$$

$$= \frac{42}{12} - \frac{9}{12} + \frac{33}{12} - \frac{10}{12}$$

$$= \frac{56}{12} = \frac{14}{3}$$

Simplify.

33.)  $4\frac{2}{5} \div \frac{21}{25}$

$$= \frac{22}{5} \div \frac{21}{25}$$

$$= \frac{22}{5} \cdot \frac{25}{21}$$

$$= \frac{550}{105} = \frac{110}{21}$$

34.) Write an equation of a line in slope-intercept form that is parallel to  $2x - 3y = 9$  and passes through the point  $(-6, 5)$ .

$$2x - 3y = 9$$

$$-3y = -2x + 9$$

$$y = \frac{2}{3}x - 3$$

$$\parallel m = \frac{2}{3}$$

$$(-6, 5)$$

$$y - y_1 = m(x - x_1)$$

$$y - 5 = \frac{2}{3}(x - (-6))$$

$$y - 5 = \frac{2}{3}x + 4$$

$$y = \frac{2}{3}x + 9$$

or

$$y = mx + b$$

$$5 = \frac{2}{3}(-6) + b$$

$$5 = -4 + b$$

$$9 = b$$

$$y = \frac{2}{3}x + 9$$

Simplify.

35.)  $6(12 - 2) \div (-2 + 4) \cdot 4(-3 - 2)$

$$= 6(10) \div 2 \cdot 4(-5)$$

$$= 60 \div 2 \cdot 4(-5)$$

$$= 30 \cdot 4(-5)$$

$$= 120(-5)$$

$$= -600$$

PENDAS



36.) At Hertz Car Rental Company, you can rent a motorcycle, sports car, or a van. The motorcycle has only one seat, sports car has 2 seats, and the van has 6 seats. On Saturday, there were a total of 31 different types of vehicles (motorcycles, sports cars, and vans). There were 3 times as many sports cars as there were motorcycles. Also, there were 6 more motorcycles than vans.

A.) If (M) represents motorcycles, (S) represents sports cars, and (V) represents vans, write a system of equations that describes this situation and find how many motorcycles, sports cars, and vans there were at Hertz that Saturday.

$$\begin{array}{l}
 M + S + V = 31 \\
 S = 3M \\
 V = 6 + M
 \end{array}
 \left. \vphantom{\begin{array}{l} M + S + V = 31 \\ S = 3M \\ V = 6 + M \end{array}} \right\}
 \begin{array}{l}
 M + 3M + 6 + M = 31 \\
 5M + 6 = 31 \\
 5M = 25 \\
 \boxed{M = 5} \\
 S = 3M \\
 S = 3(5) \\
 \boxed{S = 15} \\
 V = 6 + M \\
 V = 6 + 5 \\
 \boxed{V = 11}
 \end{array}$$

Motorcycles = 5

Sports Cars = 15

Vans = 11

B.) Using your answers from #36A, if each motorcycle costs \$75 to rent, and each van costs \$90 to rent, what is the difference in the total profits Hertz made between vans and motorcycles?

$$\begin{array}{l}
 \text{VANs} \qquad \qquad \text{MOTORCYCLES} \\
 \text{Profit} = 11(\$90) - 5(\$75) \\
 \text{Profit} = 990 - 375 \\
 \boxed{\text{Profit} = \$615}
 \end{array}$$

C.) On Sunday, you counted 26 motorcycles and 6 sports cars. How many wheels are in the shop?  
 (2 wheels)      (4 wheels)

$$\begin{array}{l}
 \text{TOTAL WHEELS} = 26(2) + 6(4) \\
 = 52 + 24 \\
 \boxed{\text{TOTAL WHEELS} = 76}
 \end{array}$$

- 37.) You find three different chocolate brownie recipes on the internet that you want to try out. Luckily, each call for the same ingredients (just different quantities).

	Recipe A (makes 22 per batch)	Recipe B (makes 18 per batch)	Recipe C (makes 24 per batch)
Sugar	$1 \frac{2}{3}$ cup	$\frac{3}{4}$ cup	$2 \frac{1}{2}$ cup
Milk	$\frac{1}{2}$ cup	$1 \frac{1}{3}$ cup	$\frac{2}{3}$ cup
Flour	$3 \frac{1}{4}$ cup	$2 \frac{3}{4}$ cup	$1 \frac{1}{3}$ cup

- A.) If you wanted to make one batch of recipe A, one batch of recipe B, and one batch of recipe C, what is the exact total amount of Flour combined you would need?

RECIPE: A B C

FLOUR:  $3\frac{1}{4} + 2\frac{3}{4} + 1\frac{1}{3}$

$$\frac{13}{4} + \frac{11}{4} + \frac{4}{3}$$

$$\frac{39}{12} + \frac{33}{12} + \frac{16}{12} = \frac{88}{12} = \boxed{\frac{22}{3}}$$

- B.) If you wanted to make a TRIPLE batch of recipe B, and a HALF batch of recipe C, how much milk would you need?

RECIPE: B C

MILK:  $3(1\frac{1}{3}) + \frac{1}{2}(\frac{2}{3})$

$$3(\frac{4}{3}) + \frac{1}{2}(\frac{2}{3})$$

$$\frac{12}{3} + \frac{2}{6}$$

$$\frac{24}{6} + \frac{2}{6} = \frac{26}{6} = \boxed{\frac{13}{3}}$$

- C.) Listed below are the approximate costs (per cup) of the ingredients listed above. Which recipe would be the cheapest to make? How much?

	Sugar	Milk	Flour
Cost	\$.25 /cup	\$.50/cup	\$.75/cup

RECIPE A

$$\frac{5}{3}(.25) + \frac{11}{3}(.50) + \frac{13}{4}(.75) = \frac{\$3.10}{22 \text{ BATCHES}} = \boxed{.14}$$

RECIPE B

$$\frac{3}{4}(.25) + \frac{4}{3}(.50) + \frac{11}{4}(.75) = \frac{\$2.91}{18 \text{ BATCHES}} = \boxed{.16}$$

RECIPE C

$$\frac{5}{2}(.25) + \frac{2}{3}(.50) + \frac{4}{3}(.75) = \frac{\$1.95}{24 \text{ BATCHES}} = \boxed{.08} \text{ CHEAPEST}$$