

Name: Key
 Alg. 1 H - Period: (1st Qtr)

Date: Oct. 5
 Ms. Nhotsoubanh

1.) Bella is 12 years old. Peter is eight years younger than Bella. In how many years, will Bella be twice as old as Peter will be then.

	Present age	future + x
Bella old	12	12 + x
Peter young	4	4 + x

Equation: $2(\text{young}) = \text{old}$
 $2(4+x) = 12+x$

2.) Nora is 14 years younger than Anthony. Ten years ago, Anthony was 3 times as old as Nora was then. How old is each now?

	Present age	past - 10
Nora	x - 14	x - 14 - 10 = x - 24
Anthony	x	x - 10

Equation: $3(\text{young}) = \text{old}$
 $3(x-24) = x-10$

3.) Two planes left at the same time from two airports which are 4,500 miles apart and flew toward each other. In 5 hours, they passed each other. The rate of the fast plane was twice the rate of the slow plane. Find the rate of each plane.

	Rate	x	Time	= Distance
1 st plane	x		5	= 5x
2 nd plane	2x		5	= 10x

Equation: $10x + 5x = 4500$

4.) Noah and Paige started from the same point at the same time. They traveled in opposite directions on their bicycles. Noah traveled at the rate of 9 miles per hour, and Paige traveled at 11 miles per hour. After how many hours were they 60 miles apart?

	Rate	x	Time	= Distance
Noah	9		x	= 9x
Paige	11		x	= 11x

Equation: $9x + 11x = 60$

5.) The sum of Maddy and her father's is 65 years. Five years from now, Maddy's Father will be four times as old as Maddy will be then. Find the present age of each.

	Present age	future + 5
maddy	65 - x	65 - x + 5 = 70 - x
dad	x	x + 5

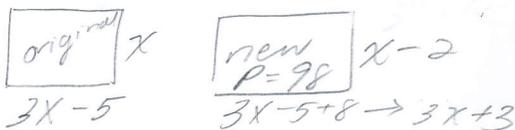
Equation: $4(\text{young}) = \text{old}$
 $4(70-x) = x+5$
 or

6.) A jar has \$7 in it. The jar consists of nickels, dimes and quarters. There are twice as many quarters as nickels, and 10 more dimes than quarters. How many of each coin are in the machine.

Type of coins	Value of each coin	# of coins	total
nickels	5	x	= 5x
dimes	10	2x + 10	= 10(2x + 10)
quarters	25	2x	= 50x

Equation: $5x + 10(2x+10) + 50x = 700$

7.) The length of a rectangle is 5 less than three times the width. If the length is increased by 8 inches and the width is decreased by 2 inches, a new rectangle is formed whose perimeter is 98 inches. Find the dimensions of the original rectangle.



$P = 2L + 2W$
 $98 = 2(3x+3) + 2(x-2)$

***8.) Riana started from home on a trip, planning to average 48 miles per hour. How fast must her brother Keith plan to travel in order to overtake her in 3 hours if Keith started 30 minutes after his sister?

	Rate	Time	Distance
Riana			
Keith			

Equation: _____

$$2(\text{young}) = \text{old}$$

$$1) \quad 2(4+x) = 12+x$$

$$8+2x = 12+x$$

$$\begin{array}{r} -x \quad -x \\ \hline 8+x = 12 \\ -8 \quad -8 \\ \hline x = 4 \end{array}$$

answer: In 4 yrs

$$2) \quad 3(x-24) = x-10$$

$$3x-72 = x-10$$

$$\begin{array}{r} -x \quad -x \\ \hline 2x-72 = -10 \\ +72 \quad +72 \\ \hline 2x = 62 \\ \frac{2x}{2} = \frac{62}{2} \end{array}$$

$$x = 31$$

$$\begin{array}{r} x-24 \\ 31-24 \\ \hline 17 \end{array}$$

Answer: Mora is 17 yrs & Anthony is 31 yrs

$$3) \quad 10x + 5x = 4500$$

$$15x = 4500$$

$$\begin{array}{r} 15x = 4500 \\ \frac{15x}{15} = \frac{4500}{15} \\ x = 300 \end{array}$$

answer: The rate of the 2 planes are 300 mph and 600 mph.

$$2(300) = 600$$

$$4) \quad 9x + 11x = 60$$

$$20x = 60$$

$$\begin{array}{r} 20x = 60 \\ \frac{20x}{20} = \frac{60}{20} \end{array}$$

$$x = 3$$

answer: In 3 hrs

There are 2 ways to solve for #5

$$5) \quad 4(\text{young}) = \text{old}$$

$$4(70-x) = x+5$$

$$280-4x = x+5$$

$$\begin{array}{r} +4x \quad +4x \\ \hline 280 = 5x + 5 \end{array}$$

$$280 = 5x + 5$$

$$\begin{array}{r} -5 \quad -5 \\ \hline 275 = 5x \end{array}$$

$$\frac{275}{5} = \frac{5x}{5}$$

$$x = 55$$

$$\begin{array}{r} 65 \\ -55 \\ \hline 10 \end{array}$$

answer: Maddy is 10 yrs and dad is 55 yrs

I made Maddy's age $65-x$ & dad's age is x .

* another option
maddy x
dad $65-x$

equation:
 $4(x+5) = 70-x$

$$6.) \quad 5x + 10(2x + 10) + 50x = 700$$

$$5x + 20x + 100 + 50x = 700$$

$$75x + 100 = 700$$

$$\begin{array}{r} -100 \quad -100 \\ \hline \end{array}$$

$$\begin{array}{r} 75x = 600 \\ \hline 75 \quad 75 \end{array}$$

$$x = 8$$

$$\begin{array}{l} 2x + 10 \Rightarrow 26 \\ 2(8) + 10 \end{array}$$

answer:

$$\text{nickels} = 8$$

$$\text{dimes} = 26$$

$$\text{quarters} = 16$$

$$2x \rightarrow 2(8)$$

$$7.) \quad P = 2l + 2w$$

$$98 = 2(3x + 3) + 2(x - 2)$$

$$98 = 6x + 6 + 2x - 4$$

$$98 = 8x + 2$$

$$\begin{array}{r} -2 \quad -2 \\ \hline \end{array}$$

$$\begin{array}{r} 96 = 8x \\ \hline 8 \quad 8 \end{array}$$

$$x = 12$$

answer:

$$\text{width} = 12 \text{ in}$$

$$\text{length} = 31 \text{ in}$$

$$3x - 5$$

$$3(12) - 5$$

$$\begin{array}{r} 36 - 5 \\ \hline 31 \end{array}$$

8) Bonus 1st to get the correct answer in each class will get 5 points on a test.

Have fun!