Find the EXACT solution to the following equations.

1.) $\frac{4}{3}x + \frac{13}{3} = \frac{5}{3}$

$-\frac{13}{3}$

$-\frac{13}{3}$

$\frac{3}{4} \cdot \frac{4}{3}x = -\frac{8}{3} \cdot \frac{3}{4}$

$X = -2$

2.) $21\left(\frac{11}{7}x + \frac{13}{21}\right) = \left(\frac{26}{7}\right)21$

$33X + 13 = 78$

$33X = 65$

$X = \frac{65}{33}$

3.) $24\left(\frac{2}{8}x + \frac{5}{6}\right) = \left(\frac{1}{3}\right) 24$

$$6X + 20 = 8$$
$$6X = -12$$
$$X = -2$$

4.) $\frac{2m+11}{3} - 5 = 18$

$+5 \quad +5$

$$\frac{2m+11}{3} = 23$$
$$2m+11 = 69$$
$$2m = 58$$
$$m = 29$$

5.) Solve for Y

$$R = \frac{Y-H}{C}$$

$$RC = Y - H$$

$$RC + H = Y$$

6.) Solve for B

$$\frac{A(B - G) + Z}{A} = \frac{R - Z}{A} + G$$

$$B = \frac{R-Z}{A} + G$$
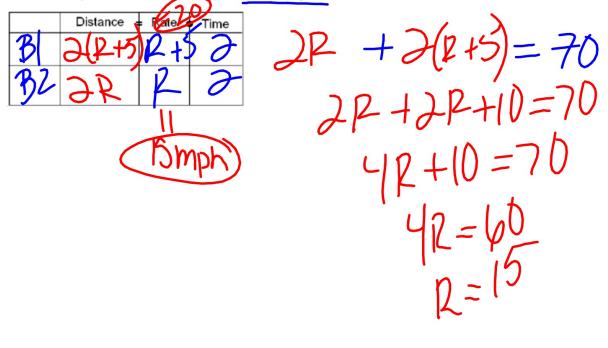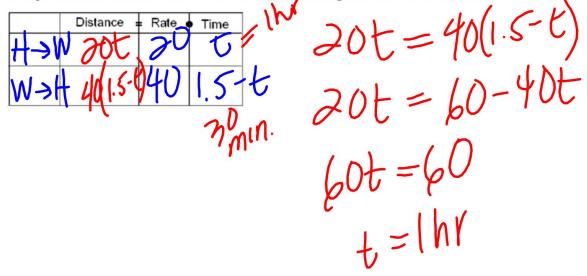
7.) You make a round trip on the weekend between home and your cottage. On the way to your cottage, you drove 60 mph. On the return, you could only drive 50 mph. The total travel time is 8.8 hours. Write and solve an equation to find the time you drove each way.

	Distance $=$	Rate $\cdot$	Time
H→C	$60t$	60	t = 4 hrs
C→H	$50(8.8-t)$	50	$8.8-t$ = 4.8 hrs

$$60t = 50(8.8-t)$$
$$60t = 440 - 50t$$
$$110t = 440$$
$$t = 4$$

Ex 1: Two bicyclists ride in opposite directions. The speed of the first bicyclist is 5 miles per hour faster than the second bicyclist. After 2 hours, they are 70 miles apart. Find their rates.

	Distance $=$	Rate $\cdot$	Time
B1	$2(R+5)$	$R+5$	2
B2	$2R$	R	2

20
15mph

$$2R + 2(R+5) = 70$$
$$2R + 2R + 10 = 70$$
$$4R + 10 = 70$$
$$4R = 60$$
$$R = 15$$

Ex 2: You left to work from home, averaging 20 miles per hour. On your drive back home, you averaged 40 miles per hour. If the total travel time was 1.5 hours, how long did it take him to drive each route?

	Distance	= Rate •	Time
H→W	$20t$	20	t
W→H	$40(1.5-t)$	40	$1.5-t$

$t = 1hr$

30 min.

$$20t = 40(1.5-t)$$
$$20t = 60 - 40t$$
$$60t = 60$$
$$t = 1hr$$

From Chapter 2 Review...

1.) Solve for N

$$\frac{MN+P}{E} - K = X$$

$+K$

$$X+K = \frac{MN+P}{E}$$

$$\boxed{\frac{E(X+K)-P}{M} = N}$$

$$E(X+K) = MN+P$$
$$-P$$
$$E(X+K)-P = \frac{MN}{M}$$

2.) $2(3x - 9) + 12 = -42$

$6x \cancel{(18+12)} = -42$

(13.)

$6x - 6 = -42$
$+6 +6$

$\dfrac{6x}{6} = \dfrac{-36}{6}$

$x = -6$

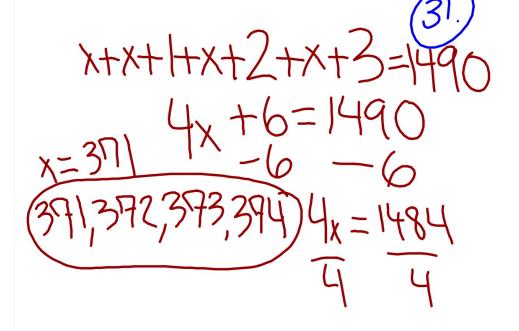3.) Solve. $4Q - 2(Q + 3) - 1 = Q - 3 + Q - 4$

(30.)

$4Q - 2Q - 6 - 1 = Q - 3 + Q - 4$

$2Q - 7 = 2Q - 7$

Many Solutions

4.) The perimeter of a rectangle is 88 inches. The width is 8 inches more than three times the length. Write and solve an equation to find the dimensions of the rectangle.

(34.)

$$88 = 2(3\ell + 8) + 2\ell \qquad P = 2\ell + 2w$$

$$W = 3\ell + 8$$

$$88 = 6\ell + 16 + 2\ell$$

$$88 = 8\ell + 16$$

$$\frac{8\ell}{8} = \frac{72}{8}$$

$$\ell = 9$$

$$W = 35$$

5.)

Four consecutive integers have a sum of 1490. Write and solve an equation to find these numbers.

(31.)

$$x + x + 1 + x + 2 + x + 3 = 1490$$

$$4x + 6 = 1490$$

$$-6 \qquad -6$$

$$x = 371$$

$$\frac{4x}{4} = \frac{1484}{4}$$

371, 372, 373, 394

6.) Three integers have a sum of 242. The second integer is two more than three times the first integer. The third integer is eight less than four times the second integer. Write and solve and equation to find these three integers.

$$X + 3x+2 + 4(3x+2)-8 = 242$$

$$X + 3x + 2 + 12x + 8 - 8 = 242$$

$$16x + 2 = 242$$

$$16x = 240$$

$$X = 15$$

38.

$$int^1 = X \quad = 15$$

$$int 2 = 3X+2 \quad 47$$

$$int 3 = 4(3X+2)-8 \quad 180$$