Chapter 2 Review

Translate each sentence into a formula.

1. Area A equals length l times width w.

$A = l \cdot w$

Translate each equation into a sentence.

$2(m+n)=2x+7$

Two times the sum of m and n is 7 more than two times x.

Solve the equation. Show your work.

$$\frac{a}{-8} + 9 = -10$$

$-9 \quad -9$

$$-8\left(\frac{a}{-8}\right) = -19 \cdot -8$$

$$a = 152$$

$$12\left(\frac{r+13}{12}\right) = 1 \cdot 12$$

$$r + 13 = 12$$

$$-13 \quad -13$$

$$r = -1$$

$8x - 5 = 13 - 4x$

$+4x \qquad +4x$

$12x - 5 = 13$

$+5 \qquad +5$

$\frac{12x}{12} = \frac{18}{12}$

$x = \frac{3}{2}$ or 1.5

$4(2+y) = 3(-6+2y)$

$8+4y = -18+6y$

$-4y \quad\quad -4y$

$8 = -18+2y$

$+18 \quad +18$

$\frac{26}{2} = \frac{2y}{2}$

$13 = y$

Solve the equation. Then graph the solution set. Show your work.

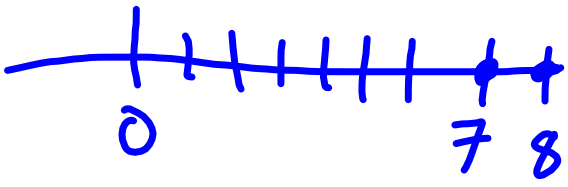
$|2z - 15| = 1$

$2z - 15 = 1$ or $2z - 15 = -1$

$+15 \quad +15$ $+15 \quad +15$

$\frac{2z}{2} = \frac{16}{2}$ $\frac{2z}{2} = \frac{14}{2}$

$z = 8$ $z = 7$



Solve $|x+3| + 12 = 5$

$-12 \quad -12$

$|x+3| = -7$

no solution

Solve the proportion. Show your work.

$\frac{5}{12} = \frac{x+1}{4}$

$20 = 12(x+1)$

$20 = 12x + 12$

$-12 \quad -12$

$\frac{8}{12} = \frac{12x}{12}$

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

State whether the percent of change is a percent of *increase* or a percent of *decrease*. Then find the percent of change. Show your work.

original: 150
new: 225

$$\frac{\text{new} - \text{org}}{\text{org}} = \frac{r}{100}$$

$$\frac{225 - 150}{150} = \frac{r}{100}$$

$$\frac{75}{150} = \frac{r}{100}$$

$$\frac{7500}{150} = \frac{150r}{150}$$

$50\% = r$

'increase

Find the total price of the item. Show your work.

kite: $15.25
tax: 5%

100%
+ 5%
105%

1.05

15.25(1.05)

= $16.01

Solve the equation for the variable indicated. Show your work.

$mn + 7p = 8$ for n

$-7p \quad -7p$

$\frac{mn}{m} = \frac{-7p + 8}{m}$

$n = \frac{-7p + 8}{m}$

Solve $2x - 4y = 7$ for y

$-2x \qquad -2x$

$\frac{-4y}{-4} = \frac{-2x+7}{-4}$

$y = \frac{-2x+7}{-4}$

OR $y = 0.5x - 1.75$

16. **BIRD SEED** A nature center sells Premium Bird Seed for $6.50 per pound and Economy Bird Seed for $4.25 per pound. The nature center sells a mixture of the two kinds of seed for $5.50 per pound. Let p represent the amount of Premium Bird Seed the nature center uses in 10 pounds of the mixture.

	Number of Pounds	Price per Pound	Cost
Premium Bird Seed	p	6.50	6.50p
Economy Bird Seed	10−p	4.25	4.25(10−p)
Mixture	10	5.50	55

b. Write an equation to represent the problem.

$6.50p + 4.25(10-p) = 55$

c. How much Premium Bird Seed does the nature center use in 10 pounds of the mixture?

d. How much Economy Bird Seed does the nature center use in 10 pounds of the mixture?

$6.50p + 42.5 - 4.25p = 55$

$42.5 + 2.25p = 55$

$-42.5 \quad -42.5$

$\frac{2.25p}{2.25} = \frac{12.5}{2.25}$

$p = 5.56$ premium

$10 - 5.56$

$= 4.44$ lbs economy

A punch containing 20% cherry juice is being mixed with a punch that contains 60% cherry juice in order to obtain 80 liters of a punch that is 30% cherry juice. How much of the 20% punch should be mixed with the 60% punch to create 80 liters of punch that is 30% cherry juice?

	Liters of juice	Amount of cherry juice
20% cherry juice	c	$0.20c$
60% cherry juice	$80-c$	$0.60(80-c)$
30% cherry juice	80	$.30(80) = 24$

$$.20c + 0.60(80-c) = 24$$

$$.20c + 48 - .6c = 24$$

$$-.4c + 48 = 24$$

$$-48 \quad -48$$

$$\frac{-.4c}{-.4} = \frac{-24}{-.4}$$

$$c = 60$$

60 L of 20% punch

20 L of 60% punch