

Lesson 3: Sections 1.4 & 1.6

By the end of this lesson, you will be able to:

- Write verbal expressions algebraically
- Write algebraic expressions verbally
- Solve equations for one variable

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Verbal and Algebraic Expressions:

Algebraic Expression:

ex: How would you say $x+2$ verbally?

Verbal Expression: x added to two
the sum of x and two

Verbal Expression:

ex: How would you write x ⁵ less than 2 algebraically?

Algebraic Expression:

$$2-x$$

$$\begin{array}{l} \cancel{2-x} \\ 2-x \end{array}$$

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Mathematical operations in verbal expressions

Addition	Subtraction
plus more than the sum of increased by added to	minus less than ✖ the difference of decreased by subtracted from ✖
Multiplication	Division
the product of multiplied by times twice	the <u>quotient</u> of divided by the <u>ratio</u> of half $\div 2$
Exponents	
squared cubed to the _____ power	

Lesson 3: Section 1.4 & 1.6

1. Write an algebraic expression or equation for each verbal expression.

a. Four times the sum of a number and two

$$4(x+2)$$

~~$$4x+2$$~~

b. Five increased by three times a number

$$5+3x$$

2. Write a verbal expression for each algebraic expression

a. $20-y$ twenty minus a number
 y less than 20

e. $5x$ five times a number
the product of five and a number

Solving Equations

1. $\frac{4x}{4} = \frac{-12}{4}$

$x = -3$

2. $3(2a + 25) - 2(a - 1) = 78$
 $6a + 75 - 2a + 2 = 78$
 $4a + 77 = 78$

$$\begin{array}{r} 4a + 77 = 78 \\ -77 \quad -77 \\ \hline \end{array}$$

$$\frac{4a}{4} = \frac{1}{4}$$

$a = \frac{1}{4}$

$$\frac{4}{5} - \frac{3.9}{4.9} = \frac{16}{20} - \frac{15}{20}$$

Solving Equations

3. $3/4 - 1/2(n) = 4/5$

$$\begin{aligned} \frac{3}{4} - \frac{1}{2}n &= \frac{4}{5} - \frac{3}{4} \\ -\frac{1}{2}n &= \frac{1}{20} \div -\frac{1}{2} \\ n &= \frac{1}{20} \cdot -\frac{2}{1} \\ n &= -\frac{1}{10} \end{aligned}$$

4. $-1.6w + 5 = -7.8$

Ex 4

$$-1.6w + 5 = -7.8$$

$$\begin{array}{r} -1.6w + 5 = -7.8 \\ \hline -1.6w = -12.8 \\ \hline -1.6 \qquad \qquad -1.6 \end{array}$$

$$w = +8$$

$$-12.8 \div -1.6$$

$$\begin{array}{r} 1.6 \overline{) 12.8} \\ \underline{8} \\ 16 \\ \underline{128} \\ 0 \end{array}$$

$$\begin{array}{r} 4 \overline{) 16} \\ \underline{8} \\ 8 \\ \underline{8} \\ 0 \end{array}$$

Solving Equations

$$-4 = -4$$

$$5. \quad -4(6y - 5) = 23 - 3(8y + 1)$$

$$-24y + 20 = 23 - 24y - 3$$

$$\begin{array}{r} -24y + 20 = 20 \\ +24y \quad \quad \quad -24y \\ \hline \end{array} \quad \begin{array}{r} -24y \\ +24y \\ \hline \end{array}$$

$$0y + 20 = 20$$

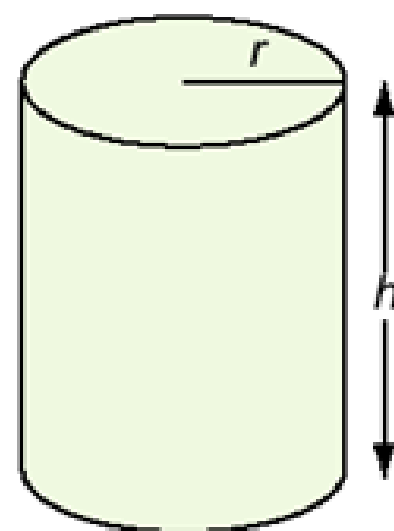
$$0 + 20 = 20$$

$$20 = 20$$

\mathbb{R} or all Real #s

Solving Equations

6. The formula for the volume of a cylinder is $V = \pi r^2 h$, where V is the volume, r represents the radius of the circular base and top and h represents the height of the cylinder. Solve the formula for h .



$$\frac{V}{\pi r^2} = \frac{\cancel{\pi r^2} h}{\cancel{\pi r^2}}$$
$$\frac{V}{\pi r^2} = h$$

$$h = \frac{V}{\pi r^2}$$

Solving Equations

7. Solve for q:

$$\begin{array}{r} qr + s = t \\ \underline{-s \quad -s} \\ qr = t - s \\ \underline{\quad \quad r} \\ \frac{qr}{r} = \frac{t-s}{r} \end{array}$$

$$q = \frac{t-s}{r}$$

8. Solve for e:

$$\begin{array}{r} de - 4f = 5g \\ \underline{+4f \quad +4f} \\ de = 5g + 4f \end{array}$$

$$\frac{de}{d} = \frac{5g + 4f}{d}$$

$$e = \frac{5g + 4f}{d}$$

Journal #3:

Only Pg 31. (Pg. 47 is next time.)

Due at the beginning of next class

Assignment #3:

Only problems from packet and

Pg. 10. (Pg. 16 is next time.)

Due at the end of next class