**Notes: Section 1-1 Variables and Expressions / 1-2 Order of Operations, Evaluating**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_

**Starter**: Write an algebraic expression for each word phrase

1. 23 less than x b) a number t divided by 82

c) the sum of 13 and twice a number h

 Write a word phrase for each algebraic expression

d) 14.1 – w e) $\frac{x}{8}+9$

Write a rule in words and as an algebraic expression to model the relationship.

f)

|  |  |
| --- | --- |
| Pairs of shoes sold | Total Earned |
| 5 | $150 + ($2 x 5) |
| 10 | $150 + ($2 x 10) |
| 15 | $150 + ($2 x 15) |
| n |  |

An equation is used to set an expression and a constant, or two expressions, equal to each other.

Write the phrase *a number h plus 3 is equal to 8* as an equation.



The phrase *a number h plus 3 is equal to 8,* written as an algebraic equation, is *h +* 3 = 8.

**Write an algebraic equation for each word phrase.**

1. The sum of 10 and a number *y* is equal to 18.
2. 15 less than a number *g* is equal to 45.
3. The product of 25 and a number *f* is 5.
4. The quotient of 49 and *x* is 7.
5. The sum of *t* and 2 is equal to 5 less than *t.*
6. The quotient of 6 + *n* and 3 – *f* is 11.

**Write an algebraic equation to model the relationship expressed.**

1. Jane tried to fly her kite but discovered that the kite string was too short. If she doubles the length of the string, it will be 28 feet long.
2. Raul is saving money to buy a car. He decides to withdraw $50 from his savings account for books. The amount left in his account after the withdrawal is $200.

**Order of Operations**:

 Powers: Ex:

 Exponent:

 Base:

Problem 1: Simplifying Powers

 What is the simplest form of the expression?

 Ex: Ex:

 Ex: Ex:

**Order of Operations:** Which is the correct way to simplify 2 + 3 x 5?

1. 2 + 3 x 5 = 5 x 5 = 25 b) 2 + 3 x 5 = 2 + 15 = 17

P – Parentheses (Perform any operations inside () first)

E – Exponents (simplify powers)

M – Multiply from left to right

D – Divide from left to right

A – Add from left to right

S – Subtract from left to right

Solve these examples using PEMDAS

1. $\left(6-2\right)^{3}÷2$ 2. $\frac{2^{4}-1}{5}$

3. $5∙7-4^{2}÷2$ 4. $12-25÷5$

5. $\frac{4+3^{4}}{7-2}$ 6. $5∙2^{2}÷2+8$

7. $52+8^{2}-3\left(4-2\right)^{3}$ 8. $\frac{2∙7+4}{9÷3}$

Evaluating Expressions

 Evaluate:

 What is the value of the expression for x = 5 and y = 2?

1. $x^{2}+x-12÷y^{2}$
2. $\left(xy\right)^{2}$
3. $3y-x^{2}$
4. $2y^{2}-7x$

