

NAME \_\_\_\_\_

DATE \_\_\_\_\_

# Module Test **B**

## Module 3

1. List the property of equality used in each step to solve the following problem.

$$2h - 6 = -5h - \frac{16}{3}$$

Given

a.  $6h - 18 = -15h - 16$

Multiplication Property of Equality

b.  $21h - 18 = -16$

Addition Property of Equality

c.  $21h = 2$

Addition Property of Equality

d.  $h = \frac{2}{21}$

Division Property of Equality

2. Solve the following equations by inspection.

a.  $6x = 24$   $x = 4$

b.  $a - 10 = 23$   $a = 33$

c.  $\frac{j}{3} = 6$   $j = 18$

d.  $M - 12 = 5$   $M = 17$

3. Rewrite the following equations for the requested variable.

a.  $k = h + 3g$  for  $g$   $g = \frac{k - h}{3}$

b.  $3Rk = j + 28$  for  $k$   $k = \frac{j + 28}{3R}$

c.  $3x + 5 = 2y$  for  $x$   $x = \frac{2y - 5}{3}$

d.  $A = \pi vr$  for  $r$   $r = \frac{A}{\pi v}$

4. Determine if the following equations are one-step, two-step, or multi-step equations. Solve the equations to find the value of the variable.

a.  $3n + 2n = -6n + 11$

multi-step;  $n = 1$

b.  $4l = 24$

one-step;  $l = 6$

c.  $9K = 3K + 12$

two-step;  $K = 2$

d.  $3Z - 5 = 23 + 7Z$

multi-step;  $Z = -7$

5. List the property of equality used below.

a. If  $2r = g$  and  $g = 3v$ , then  $2r = 3v$ .

Transitive Property of Equality

b.  $13 = 13$

Reflexive Property of Equality

c. If  $3 - x^2 = 3y$ , then  $3y = 3 - x^2$ .

Symmetric Property of Equality

d. If  $9h = 9$ , then  $h = 1$ .

Division Property of Equality

Solve the following linear equations.

6.  $2m = 6$   $m = 3$

7.  $6h = 5h - 13$   $h = -13$

8.  $10 = 7 + 5x$   $x = \frac{3}{5}$

9.  $6m - 7 = -8$   $m = \frac{-1}{6}$

10.  $3K = \frac{2}{7}$   $k = \frac{2}{21}$

Are the following pairs of statements true or false?

11.  $h = 3 + t$  and  $t = h + 3$

False

12.  $4K = 3(5 + K)$  and  $K = 15$

True

13.  $4L = 1 + 5W$  and  $2 = 4L + 5W$

False

14.  $C = 2\pi r$  and  $\pi = \frac{C}{2r}$

True

15.  $11 - p = 3 + p$  and  $p = 4$

True

True or False,  $x = 3$  is a solution to the following equations.

16.  $2x + 3 = 9$

True

17.  $x + 10 = 7x - 7$

False

18.  $\frac{21}{x} = 4 + x$

True

19.  $15x = \frac{45}{x} + 3$

False

20.  $12 = 5x - 3$

True

Answer the following questions:

16. Explain why it is sometimes useful to rewrite the following formula:  $A = \frac{1}{2}bh$

By rewriting the given formula, we can

solve for  $b$  or  $h$  as needed.

17. Give an example of the Symmetric Property of Equality:

If  $a = b$ , then  $b = a$ .