Name _____ Class _____ Date _____

Practice 3-7

Problem Solving

1. For what values of x is it reasonable to use the expression $-4x^5$ to represent the following situation? **The distance Wendell bikes to the library.**

- ❍ A. for integer values of x
- ❍ B. for any value of x except zero
- ❍ C. for negative values of x
- ❍ D. for positive values of x

2. For what value(s) of x will $-2x^2 = -32$?

- ❍ A. 4
- ❍ B. 4 and –4
- ❍ C. 16 and –16
- ❍ D. 16

3. An expression representing the volume of an aquarium is $11m^5$.

a) For what values of m is the expression $11m^5$ reasonable?

- ❍ A. positive numbers
- ❍ B. any number other than zero
- ❍ C. negative numbers
- ❍ D. any integer

b) What values of m are reasonable if the expression representing the volume is $-11m^5$? Explain.

4. An expression representing the area of a square is $7n^4$. For what value(s) of n is the expression $7n^4$ reasonable?

- ❍ A. The value of n can be any number other than zero.
- ❍ B. The value of n must be a positive number.
- ❍ C. The value of n must be zero.
- ❍ D. The value of n must be a negative number.

5. Carie drives $-5x$ miles in the morning and $2x^2$ miles in the afternoon.

a) Which expression represents the total distance Carie drives?

- ❍ A. $-5x \div 2x^2$
- ❍ B. $5x - 2x^2$
- ❍ C. $-5x + 2x^2$
- ❍ D. $-5x(2x^2)$

b) What must be true about the value of x in order for the expression to make sense for the situation?

- ❍ A. The value of x must be an integer.
- ❍ B. The value of x must be a positive number.
- ❍ C. The value of x must be a negative number.
- ❍ D. The value of x can be any number.

6. A playground is in the shape of a square that measures 5n meters on each side. The area of the new playground is 225 square meters.

a) For what value(s) of n will $25n^2 = 225$?

❍ A. 3 and –3
❍ B. –3
❍ C. 9
❍ D. 9 and –9

b) Which of these values of n make sense for this situation? Use a comma to separate answers as needed.

7. a) For what value(s) of k will $–189 = –7k^3$? Use a comma to separate answers as needed.

b) How would you write an equation using $(–k)^3$ that you can solve with a positive value of k? A negative value of k?

8. For what value of x will $5^x = 5$?

9. Think About the Process You need to find the value(s) of t for which it is reasonable for the expression $6t^{11}$ to represent the area of a rectangle.

a) What is a reasonable way to make sure that the area of a rectangle is always positive?

❍ A. For the area to be positive, both dimensions should be negative.
❍ B. For the area to be positive, the dimensions should have different signs.
❍ C. For the area to be positive, both dimensions should be positive.

b) For what value(s) of t is it reasonable for the expression $6t^{11}$ to represent area?

❍ A. The value of t must be zero.
❍ B. The value of t must be a positive number.
❍ C. The value of t must be a negative number.
❍ D. The value of t can be any number.

10. Think About the Process

a) How would you find values of y that make $(2y)^2 = 4y$ true?

❍ A. Use the fact that $(a^2)^2 = a^{2 \cdot 2}$ to rewrite $(2y)^2$. Then solve for y.
❍ B. Use the fact that $(ab)^2 = a^2b^2$ to rewrite $(2y)^2$. Then solve for y.
❍ C. Use the fact that $a^2 \cdot a^2 = a^{2+2}$ to rewrite $(2y)^2$. Then solve for y.

b) Find these values of y.

Practice 3-7: ***Problem Solving***

1. C

2. B

3. a) A

b) Answers will vary

4. A

5. a) C

b) C

6. a) A

b) 3

7. a) 3

b) Answers will vary

8. $x = 1$

9. a) C

b) B

10. a) B

b) $y = 0, 1$