Math 9 Unit 1 test review

1. Identify the INTEGERS, RATIONAL NUMBERS, and IRRATIONAL NUMBERS. (Some may be more than one)

   4.6   2   -1 π $\sqrt{3}$ $\frac{3}{14}$

2. When we multiply a number by itself, the product is called the _____ .

   When we find one of two equal factors of a number, it is called the

   _____ . In an equation, when we take the square root, there are

   _____ answers – one _____ and one _____ . The positive

   root is called the _____ square root.

3. Label the parts of the expression below

   _____

   _____

   $5x^3$

   _____

   _____

4. Find each unknown
   a. $3 * 10^? = 3000$ b. $0.6 * ? = 60$

5. Simplify

   a. $x^5 x^3$ b. $\dfrac{x^5}{x^3}$ c. $(2x^5)(3x^3)$ d. $\dfrac{10x^5}{5x^3}$

   e. $x^5 x^{-3}$ f. $(x^2)^4$ g. $(2x^2)^2$ $(9x^{-4})^0$

6. Evaluate.
   a. $2^3 \bullet 2^1$ b. 4^0 c. $9^2 - 9^1$
   d. 0^2 e. $(3 \bullet 10)^2$ f. $8^5 \div 8^4$

7. Sketch the triangle and find the hypotenuse if legs a = 6 and b = 8.

8. When I left the house this morning, it was -3 degrees out. By noon it had warmed up by 7 degrees. What was the temperature at noon? Write a math sentence (equation) and solve.

9. Operations with integers.

   a. -2 + 4   b. -3 * -4   c. 12 / -4   d.   (-3)(2)(10)

10. (4 pts) In scientific notation, the decimal point is placed _____
   _____ . The base is always _____. If a number is larger than 1, the
   exponent will be _____ and if the number is between 0 and 1, the exponent
   will be _____ .

11. Operations with fractions.

   a. $2/7 + 3/7 =$ _____   b. $5/12 - 1/6 =$ _____
   c. $5/6 * 3/8 =$ _____   d. $9/4 \div 2/3 =$ _____
   e.   I have ¾ of a pizza left to divide among my 3 children. What fraction of a pizza does
        each one get?

12. Operations with decimals.

   a. $14.04 + 8.2$ b. $12.0 / 3$ c. $1.2 * 0.4$ d. $8.46 - 7.02$

   e.   If I have $20/week to spend on school lunches, and my average lunch costs $4.25,
        how many days a week can I buy lunch?

   f.   If it takes me 30 minutes to knit 6 inches of a scarf, how long will it take me to finish
        a 6 foot long scarf? (There are 12 inches in a foot.)

13. Order of operations (6 points)

   $(2+ 8)*4 -1 =$ _____   c. $6 \div 2 - (4*3) =$ _____

14. a. Write in scientific notation: $58,000 =$ _____
                                           0.43 _____
    b. Write in standard form: $4.502 \times 10^5 =$ _____
                                           $7.0 \times 10^{-5} =$ _____

15. Evaluate:
   a. 3^3 b. $(1/4)^2$ c. $5^0 \times 4$ d. $6^{10} \div 6^8$

16. Simplify:

        a. $-4x + 6x$ b. $(ab^3)^2$ c. $(3x^2)(-4x)$ d. $(5xy^4)/(x^2y)$

17. a. What is 30% of 70?   b. What percent is 80 out of 200?

   c. Sales tax in the Yukon is 5%. If an item costs $40.00, how much will the tax be? What
   is total cost of the item, including tax?