

**Chapter 1 Algebra Review 2011****Multiple Choice**

Identify the choice that best completes the statement or answers the question.

- \_\_\_\_\_ 1. Name the set(s) of numbers to which 1.68 belongs.
- rational numbers
  - natural numbers, whole numbers, integers, rational numbers
  - rational numbers, irrational numbers
  - none of the above
- \_\_\_\_\_ 2. Evaluate the expression  $\frac{(a - b)^2}{ab}$  for  $a = -1$  and  $b = -4$ . Write your answer in simplest form.
- $3\frac{1}{3}$
  - $2\frac{1}{2}$
  - $1\frac{4}{5}$
  - $2\frac{1}{4}$
- \_\_\_\_\_ 3. Estimate the value of  $\sqrt{43}$  to the nearest integer.
- 7
  - 6
  - 6
  - 7
- \_\_\_\_\_ 4. Which set of numbers does NOT contain an irrational number?
- $-\sqrt{5}$ ,  $-\sqrt{195}$ , -8.15
  - $-\sqrt{49}$ ,  $-\sqrt{1.44}$ , 6.6
  - 0.6868...,  $-2\frac{3}{8}$ ,  $\sqrt{10}$
  - $\frac{5}{6}$ , -1,  $\sqrt{11}$

**Short Answer**

5. **a.** Write an equation to show how the amount of money in a jar of nickels is related to the number of nickels in the jar.  
**b.** If the jar contains 40 nickels, how much money is this?

**Write an algebraic expression for the phrase.**

6. 4 times the sum of  $q$  and  $p$   
7. -2 times the quantity  $q$  minus 3

**Define a variable and write an expression for the phrase.**

8. the quotient of 6 times a number and 16  
9. 4 minus a number  
10. Evaluate  $u + xy$ , for  $u = 18$ ,  $x = 10$ , and  $y = 8$ .  
11. Evaluate the expression  $(ab)^2$  for  $a = 4$  and  $b = 3$ .

**Simplify the expression.**

12.  $3[(15 - 3)^2 \div 4]$
13.  $-4.8 - (-4.9) + 5.7$
14.  $-\frac{1}{8} - \frac{2}{7}$
15.  $(-2)^5$
16.  $-5^4$
17.  $\frac{(-9)(-8)}{(-2)}$
18.  $(-5 - c)(-1)$
19. Evaluate the formula  $V = \frac{Bh}{3}$  for  $B = 9 \text{ in.}^2$  and  $h = 32 \text{ in.}$
20. Write  $-\frac{1}{6}$ ,  $\frac{5}{3}$ ,  $-\frac{5}{6}$  in order from least to greatest.
21. Evaluate  $|-x - 2y|$  for  $x = -2$  and  $y = 3$ .
22. Evaluate  $b - 2a - c$  for  $a = -7$ ,  $b = 3$ , and  $c = -7$ .
23. Evaluate  $x(-y + z)$  for  $x = 3$ ,  $y = 3$ , and  $z = 1$ .

**Name the property the equation illustrates.**

24.  $0 + x = x$
25.  $8 + 3.4 = 3.4 + 8$
26.  $7 + (4 + 4) = (7 + 4) + 4$

**Identify the number as *rational* or *irrational*.**

27. 1.875
28.  $\sqrt{112}$

**Essay**

29. **a.** Simplify the following expressions.  
 $(-1)^1, (-1)^2, (-1)^3, (-1)^4, (-1)^5$
- b.** What is the sign of the final answer when the exponent is odd? When the exponent is even?
- c.** Use your answer from part (b) to simplify  $(-1)^{19}$ .

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

ID: A

**Other**

30. Is the statement below *true* or *false*? If the statement is false, give a counterexample.  
All real numbers are rational.
31. Is the following statement *true* or *false* for all values of  $a$  and  $b$ ? If false, give a counterexample.  
 $|a + b| > |b|$
32. Is it possible to take the square root of a negative number? Explain.