

**Student:** Cole Lamers  
**Date:** 06/09/19

**Instructor:** Kelly Galarneau  
**Course:** CA&T Internet (70263)  
Galarneau

**Assignment:** Basic Concepts of Algebra  
Part 1

1. Determine whether  $\sqrt{28}$  is rational or irrational.

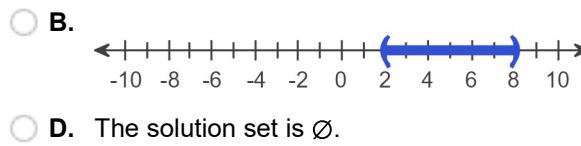
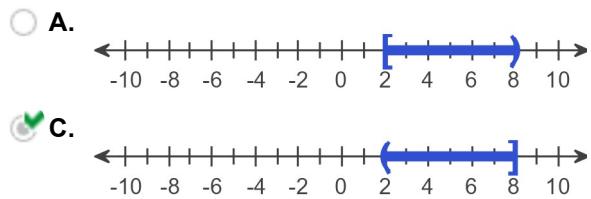
Choose the correct answer below.

- A. Rational because radicand is a nonnegative.
- B. Irrational because radicand is not a perfect square.
- C. Rational because radicand is a perfect square.
- D. Irrational because radicand is an integer.

2. Graph the interval on a number line and write the inequality notation.

(2,8]

Choose the correct graph below.



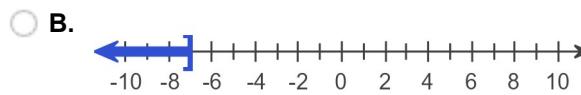
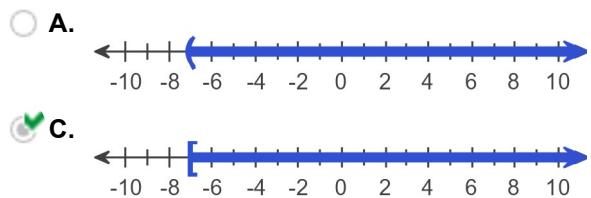
What is the interval in inequality notation?

(Type an inequality using x as the variable.)

3. Graph the interval on a number line and write the inequality notation.

[-7,∞)

Choose the correct graph below.



D. The solution set is  $\emptyset$ .

What is the interval in inequality notation?

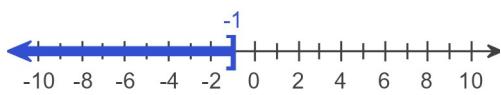
(Type an inequality using x as the variable.)

4. Graph the interval on a number line and write the inequality notation.

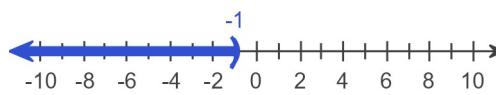
$$(-\infty, -1)$$

Choose the correct graph below.

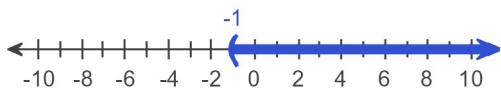
A.



B.



C.



D. The solution set is  $\emptyset$ .

What is the interval in inequality notation?

$$x < -1$$

(Type an inequality using  $x$  as the variable.)

5. Use the distributive property to remove the parentheses.

$$3(x + 4)$$

$$3(x + 4) = \underline{\hspace{2cm}} 3x + 12 \quad (\text{Simplify your answer.})$$

6. Evaluate  $2(c + d) - 5d$  for  $c = 3$  and  $d = -8$ .

The value of the expression  $2(c + d) - 5d$  for  $c = 3$  and  $d = -8$  is  $\underline{\hspace{2cm}}$  30 .  
(Simplify your answer.)

7. Evaluate the given algebraic expression for  $x = 5$  and  $y = -5$ .

$$|x| + |y|$$

The answer is  $\underline{\hspace{2cm}}$  10 .

(Type an integer.)

8. Complete the following statement.

The number  $\frac{1}{4^{-2}}$  simplifies to the positive integer  $\underline{\hspace{2cm}}$ .

The number  $\frac{1}{4^{-2}}$  simplifies to the positive integer  $\underline{\hspace{2cm}}$  16 .

(Simplify your answer.)

9. State whether the following statement is true or false.

$$(-11)^{10} = -11^{10}$$

Choose the correct answer below.

True

False

10. Evaluate the expression.

$$(6^3)^{-1}$$

$$(6^3)^{-1} = \frac{1}{216}$$

(Simplify your answer.)

11. Simplify.

$$2^6 \cdot 2^{-3}$$

$$2^6 \cdot 2^{-3} = 8$$

12.

Evaluate the given expression.

$$2^0 + 3^0$$

$$2^0 + 3^0 = 2$$

(Simplify your answer.)

13. Evaluate the expression.

$$-9^{-2}$$

$$-9^{-2} = \frac{1}{-81}$$

(Simplify your answer. Type an integer or a fraction.)

14. Evaluate the given exponential expression.

$$\frac{(2^3)^2}{2^5}$$

$$\frac{(2^3)^2}{2^5} = 2$$

(Simplify your answer.)

15. Evaluate.

$$\left(\frac{2}{5}\right)^{-3}$$

$$\left(\frac{2}{5}\right)^{-3} = \frac{125}{8}$$

16.

Write an equivalent expression with positive exponents only.

$$x^7y^{-4}$$

Which choice is correct?

- A.  $xy^3$
- B.  $\frac{1}{x^7y^4}$
- C.  $\frac{x^7}{y^4}$
- D.  $(xy)^3$

17. Simplify the expression. Write your answer without negative exponents. Assume that the variables represent nonzero real numbers.

$$x^{-5}y^{-4}$$

$$x^{-5}y^{-4} = \frac{1}{x^5y^4}$$

18. Write the number in scientific notation.

$$442$$

$$442 = 4.42 \cdot 10^2$$

(Use scientific notation. Use the multiplication symbol in the math palette as needed.)

19.

- Convert the number to scientific notation.

$$0.0000000005$$

$$0.0000000005 = 5 \cdot 10^{-11}$$

(Use scientific notation. Use the multiplication symbol on the math palette as needed.)