

Student: Cole Lamers
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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.

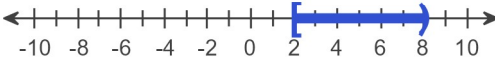
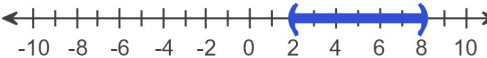
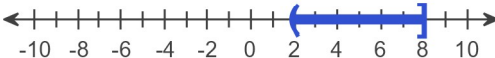
Choose the correct answer below.

- ☐ 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.

- ☐ A.  ☐ B. 
☒ C.  ☐ D. The solution set is \emptyset .

What is the interval in inequality notation?

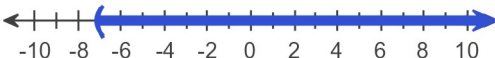
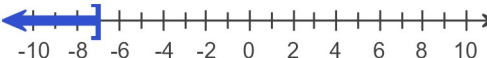
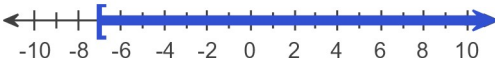
$2 < x \leq 8$

(Type an inequality using x as the variable.)

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

$[-7, \infty)$

Choose the correct graph below.

- ☐ A.  ☐ B. 
☒ C.  ☐ D. The solution set is \emptyset .

What is the interval in inequality notation?

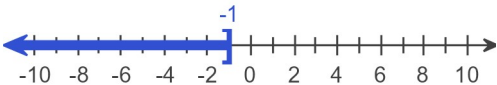
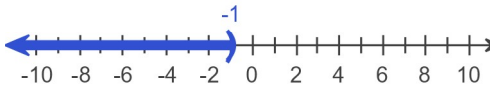
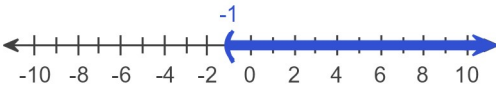
$x \geq -7$

(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.

$$3(x + 4)$$

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

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 30 .
(Simplify your answer.)

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

$$|x| + |y|$$

The answer is 10 .
(Type an integer.)

8. Complete the following statement.

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

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

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

$$(6^3)^{-1} = \frac{1}{216} \quad (\text{Simplify your answer.})$$

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.

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

$$\frac{(2^3)^2}{2^5} = 2 \quad (\text{Simplify your answer.})$$

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.

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

Which choice is correct?

- ☐ A. xy^3
- ☐ B. $\frac{1}{x^7 y^4}$
- ☒ 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.

0.00000000005

$$0.00000000005 = 5 \cdot 10^{-11}$$

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