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Volume 5 Lesson 1 Supplemental Worksheet

Combine the real numbers below and then state whether your answer is a natural number, an integer, neither or both.

1. $\frac{5}{8} - -\frac{3}{8} =$

2. $2.5 - -.5 =$

3. $.003 + -.062 =$

4. $-2\frac{1}{2} + -1\frac{1}{2} =$

5. $-8\frac{1}{2} + \frac{3}{4} =$

6. $-27 + -41 =$

7. $-.5 - -2.5 =$

8. $-2 + 7 =$

9. $-3\frac{1}{2} + -4 =$

Circle all of the integers below.

10. 5 -5 0 $-\frac{1}{2}$ 5.5 -5.5 -9 9.5 6,245 12 27 -27

Circle all of the natural numbers below.

11. -10 -3 55 102 6.5 -6.5 $-\frac{3}{4}$ 3 $-17\frac{1}{2}$ 252 0 -1

Solve the following problems. State whether your answer is a natural number or an integer.

12. $-6 \times 3 =$

13. $8 \times 8 =$

14. $-50 \times -2 =$

15. $48 \div -3 =$

16. $-144 \div -12 =$

17. $-72 \div 8 =$

18. I'm thinking of a real number that is also an integer, but it is not a natural number. It is an even number that is greater than negative three. What is the number?

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Volume 5 Lesson 2 Supplemental Worksheet

1. What is another name for a ratio, such as $\frac{1}{2}$?
2. What is the root word in *Rational*?
3. Is the real number three fourths rational or irrational?
4. Is point five a rational or an irrational number?
5. Are whole numbers rational or irrational?
6. Complete the sentence: Rational numbers can be written as _____, irrational numbers cannot be written as _____.

Solve the following. Name the number set(s) that your answer belongs to.

7. $-12 + 10 =$ _____

8. $-16 - -29 =$ _____

9. $-11 \times -14 =$ _____

10. $-56 \div 8 =$ _____

11. $\frac{5}{8} \times -\frac{3}{5} =$ _____

12. $\sqrt{2} =$ _____

13. Collin needs to remember his password. He has a few clues to help him remember it. Here are the clues: It is a rational number. It is not an integer. It is not a natural number. It has a denominator of 2, it is positive, and it is less than 1. What is this real number? Spell out the number to reveal his password.

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Volume 5 Lesson 3 Supplemental Worksheet

Name the coefficient of each variable in the equations below.

1. $5x + 3 = 23$

2. $-3a - 8 = -32$

3. $8 + b = 12$

Circle the variables in each equation below.

4. $-2a + -2b = -22$

5. $y = 2x + b$

6. $-8m^2 = -32$

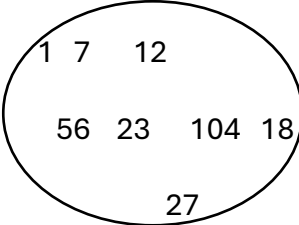
7. Look at the equation below. If $y = 22$, then $a = ?$

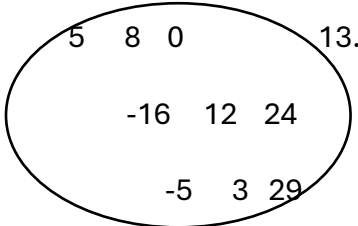
$$y = 2a + 6$$

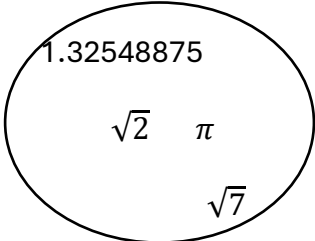
Solve the following equations and then state if your answer is a rational or an irrational number.

8. $-\frac{1}{3}a = -10$ _____ 9. $6x + -4 = 14$ _____ 10. $\sqrt{7} = x$ _____

Name each number set.

11. 

12. 

13. 

14. Connor is paid \$25 per hour to build computers. He receives a \$100 bonus every time he finishes building one. Write an equation with coefficients and variables and then use that equation to find out how much Connor will be paid after working for 40 hours and completing 5 computers.

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Volume 5 Lesson 4 Supplemental Worksheet

Questions 1 – 8 each give a term. If $x = 8$, find the value of each term.

1. $x^2 =$ 2. $7x =$ 3. $2x =$ 4. $2(x - 3) =$

5. $\frac{32}{x} =$ 6. $\frac{x}{2} =$ 7. $x^3 =$ 8. $x(2 + x) =$

For each of the expressions below, $x = 5$. Simplify each one as far as possible.

9. $2x + y =$ 10. $a - x^2 =$ 11. $-2x + b =$ 12. $\frac{25}{x} + -y =$

13. $x^3 + y =$ 14. $y - -3x =$ 15. $-11y + \frac{x}{5} =$ 16. $-y^2 - -x^2 =$

Simplify each expression below by combining any *Like Terms*.

17. $2x + 3ab - ab =$

18. $4x^2 - 3x + 5x^2 =$

19. $-a + ab^2 - b - ab^2 =$

20. $2cats - 4dogs + 3cats + 9dogs =$

21. $\frac{1}{2}a + \frac{1}{2}a - \frac{1}{2}b =$

22. $-\frac{5}{9}ab + \frac{32}{64}a - \frac{4}{9}ab =$

23. Dianna has a mathematical farm. On her farm she has two baby abc^2 animals along with the two adult abc^2 animals. In another barn she has four ab^2 animals and six abc birds. She is going to give the two baby abc^2 animals to a new family and then get four more abc birds. Write a mathematical expression to find the total of each type of animal.

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Volume 5 Lesson 5 Supplemental Worksheet

Name the factors of each term.

1. $3abc$

2. $2xy^2$

3. $(-3x \cdot -2y)$

4. 14^2

5. $(x + 2)(x + 3)$

6. $abcd^2$

7. -7^3

8. xy

9. $-2(x + 3)$

Solve the following.

10. $|-8| + |7| =$

11. $|-4^2| =$

12. $|9| - |-5| =$

13. $|-10| \times |4| =$

14. $|12| - |-4| =$

15. $|-9| \times |11| =$

16. Name the only integer in this equation: $x + -12 = \frac{5}{8}$

17. Name the only natural number in this equation: $-18x + 12 - \frac{3}{8} = -24\frac{3}{8}$

18. Simplify this expression. What is the coefficient in the answer?

$$7ab + 6xy^2 - 2ab + 3xy^2 - 9xy^2 + ab =$$

19. How many variables are in $8xy^2z^2$? Is $8xy^2z^2$ a term or an expression?

20. What is the absolute value of the coefficient in the term below?

$$-23abc^3d^2$$

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Volume 5 Lesson 6 Supplemental Worksheet

Combine the like terms below.

1. $-5ab + 3ab =$

2. $8xy - 6x + 2xy =$

3. $-9a^2 + 3b^2 + 2b^2 =$

4. $15xyz - -13xyz =$

5. $-\frac{1}{2}x + -\frac{3}{4}x =$

6. $-\frac{5}{8}ab^2 - \frac{2}{3}ab^2 =$

7. $3a + 4b + 6b + 2b - 8a - 6b^2 =$

8. $18abc - 14abc^2 + 3ab^2c + 2abc =$

9. $2x + 3 - 4y - 2 =$

10. $= \frac{108}{12}x + 4x + 3y^2 - 5y^2 =$

11. $36b - 8b - 12b + a =$

12. $.8660x - -.2254x + .5y =$

13. $\frac{1}{4}m + -\frac{1}{16}m - \frac{3}{16}p + \frac{5}{8}p =$

14. $\frac{1}{2}s - -.5s =$

15. $87a + 5c - 80a - 3c - 20e - 6a - c + 21e =$

16. How much money is in the "Algebraic Piggy Bank?"

$d = \text{dimes}$ $n = \text{nickels}$ $q = \text{quarters}$

$$3d + 6n + 2d - 4n + 8q - 1d + 4q - \$1.00 =$$

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Volume 5 Lesson 7 Supplemental worksheet

Simplify the following expressions by combining like terms.

1. $abc^2 + 3abc^2 =$

2. $-9xy + xy =$

3. $b^3 + b^2 + 3b^3 =$

4. $3y - 4y =$

5. $4x^3 + 4x^3 - x^3 =$

6. $12a^4b^3 - 2a^2 + a^4b^3 =$

7. $42x - 2x^2 =$

8. $14w^3x - 3wx + 6w^3x + w^3x =$

9. $25gh + 5gh - 4mn - gh + 4mn^2 =$

10. Nine x cubed, plus ten x squared, minus four x cubed equals _____

11. What are the factors of $11x^2y^3z$? _____

12. $45xy + 5x^2y^2 - x^2y^2 + 5x - 40y + 2xy =$

13. $2x + 2x^2 + 2x^3 + 3x + 3x^2 + 3x^3 =$

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Volume 5 Lesson 8 Supplemental Worksheet

Simplify the following.

1. $x \cdot x^2y =$ 2. $a^3 \times a^4 =$ 3. $-b^2 \cdot bc =$

4. $abc^2 \cdot ab^3c^4 =$ 5. $-7x \times -\frac{1}{4}x =$ 6. $-\frac{1}{2}b^2 \cdot -\frac{5}{6}ab^2 =$

Fill in the blank.

7. $2y^2 \cdot \underline{\hspace{2cm}} = 16y^3$

8. $\underline{\hspace{2cm}} \cdot 3abc^2 = 12a^2b^2c^2$

9. $\underline{\hspace{2cm}} \times \frac{8}{2}abc = -4abc^2$

10. $-11s^2 \cdot \underline{\hspace{2cm}} = 198rs^3$

Simplify the following expressions.

11. $2a^2 + 3a^2 + (6a \cdot 8a) =$

12. $-5b \cdot 2b - (2b^2 + 8b^2) =$

13. $(-3x^2 + 5x^2) - \frac{1}{4}x \cdot \frac{12}{3}x =$

14. $(y^2 \cdot y^3 \cdot y) + (3y^6 - y^6) =$

15. $a \cdot a^2 \cdot a^3 \cdot a^4 \cdot b =$

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Volume 5 Lesson 9 Supplemental Worksheet

Simplify the following.

1. $x^5 \div x^3 =$

2. $a^7 \div a^4 =$

3. $-20b^2 \div -5b =$

4. $\frac{18y^5}{-6y^4} =$

5. $\frac{\frac{1}{2}m^8}{4m^4} =$

6. $a^2b^{12} \div -ab^2 =$

Fill in each blank with either a +, -, \times or \div to make each equation true.

7. $21y^2 \div 7y =$

8. $5ab^2 + 5ab^2 =$

9. $2x^3y^3 - x^3y^3 =$

10. $-2abc \cdot 2ab^3c =$

Simplify the following expressions.

11. $12a^2 \div 3a^2 + (-3a + 3a) =$

12. $-7b \cdot 8b + (-8b^3 \div 4b) =$

13. $(25x^4 \div 5x) - x \cdot \frac{9}{3}x^2 =$

14. $(7y^3 - 3y^3) + (-33y^6 \div 11y^3) =$

15. $(8xyz^2 + 2xyz^2) + (12xy^2 - 10xy^2) + (6xy \cdot 5y) + (24xyz^3 \div 8z) =$

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Volume 5 Lesson 10 Supplemental Worksheet

Divide the following. Reduce your answer if possible.

1. $\frac{9x^8}{3x^9} =$

2. $\frac{42a^5}{7a^4} =$

3. $\frac{14b^7}{-2b} =$

4. $\frac{-15y^4}{5xy^8} =$

5. $\frac{\frac{3}{4}xyz^4}{-3xy^4z^3} =$

6. $a^2b^{12} \div -ab^2 =$

7. $-27a^3b^4c \div 9ab^5c^2 =$

8. $5.25xyz \div -5x^8y^2z^3 =$

9. $-\frac{3}{8}x^3y^3 \div \frac{1}{2}x^4y^4 =$

10. $-24x^8 \div 8xy =$

11. $12e^6f^3g^4 \div -\frac{1}{2}e^3f^3g^6 =$

12. $-60x^{15}y^{12} \div 12x^{13}y^{17} =$

13. $-81abc \div -9a^5b^4c^3 =$

14. $\frac{72m^{54}n^{65}}{8m^{18}n^{32}} =$

15. $\frac{12x^{32}}{2x^{32}} + \frac{10xy^{28}}{5xy^{28}} =$