

Integers and Rational Numbers Review

Short Answer

1. Subtract. Express your answer in simplest form.

$$2\frac{5}{6} - 1\frac{3}{10}$$

2. The cheerleaders held a car wash to raise money for new uniforms. They spent \$12 on soap and \$19 on sponges, rags, and a bucket. It rained the day of the car wash, so the cheerleaders only made \$25.

Write an integer expression that shows their profit or loss. Simplify the expression and explain what the amount means.

3. A ship's anchor was dropped from a height of 1.4 m above the water to a depth of 10.8 m. How far did the anchor drop?
4. Use a number line to find the sum.
 $-11 + 8$
5. The price of a radio was lowered by \$6, then raised by \$3. If the original price was \$45, what is the current price?
6. Solve the problem by first expressing the given data as a difference of positive and negative numbers. Then, compute the difference and answer the question.

Adam climbed Mt. Stony to an elevation of 3116 m above sea level. He also explored the lowest point of Cranmore Canyon 1143 m below sea level. What is the difference between the two levels?

7. Maria solved an equation as shown below. Describe the mistake(s) she made in solving the equation and then find the correct solution.

$$3x + 4 - 2 - x = 5x + 9 - 4x - 5$$

$$2x + 6 = x + 4$$

$$2x - x + 6 = x - x + 4$$

$$x + 6 = 4$$

$$x + 6 - 6 = 4 + 6$$

$$x = 10$$

8. Write a problem that could be represented by “-\$37.” Be sure your problem includes getting the negative number back to 0.
9. Explain why both $|8|$ and $|-8|$ are positive.
10. What values can m have if $|m| = 3$? Locate each value on the number line and explain your answer.



11. Locate $-|6|$ and its opposite on the number line. Explain how you found each number.



12. Evaluate the expression for the given values of the variables. Justify each step.
 $3.6 + x + y$, when $x = -5.9$ and $y = -3.6$
13. Find the sum.
 $24 + (-24)$
14. Subtract.
 $103 - (-86)$
15. Show that $3\frac{1}{5}$ is rational by writing it in $\frac{a}{b}$ form. Then give the multiplicative inverse and the additive inverse.
16. Find the missing number.

$$5 + 3 - 6 - 8 + 4 - \square = -9$$
17. Simplify the expression and identify what property or properties you used.
 $3(8x - 2) + 7(-2x - 6)$
18. $299 + 0 = 299$ is an example of which property?
19. Multiply. Express your answer in simplest form.
 $6\left(1\frac{1}{4}\right)$
20. A student solved the equation $-\frac{3}{4}p = 18$ and determined that $p = -24$. Is the solution correct? Explain why or why not. If not, determine the correct solution.
21. You have two fractions, each less than 1. Write a conjecture about the product of these two fractions. Give two examples to support your conjecture.
22. Simplify $(-5) \cdot (-4)$.
23. Helen's hourly salary is \$9.75. Last week she worked a 25-hour week. How much did she earn?
24. Johnny's hourly salary is \$12.31. Last week he worked a 32.75-hour week. How much did he earn?
25. Find the quotient.
 $-30 \div (-2)$
26. Divide by solving a related multiplication equation.
 $-42 \div 7$
27. Find the quotient.
 $-64 \div (-16)$
28. Evaluate the expression when $a = -6$.

$$\frac{24}{a}$$
29. Find the quotient.
 $-50 \div 2$

30. Divide $-156 \div (-12)$.

31. Divide $-544 \div (-34)$.

32. Divide $27.195 \div 3.5$.

33. Identify and correct the mistake:

$$7x^2 + 4x - 3(x - 8)$$

$$7x^2 + 4x - 3x - 24$$

$$7x^2 + x - 24$$

34. $7(4 + 3) = 7 \times 4 + 7 \times 3$ is an example of which property?

35. $42 \times 1 = 42$ is an example of which property?

36. $14 \times 7 + 14 \times 5 = 14(7 + 5)$ is an example of which property?

37. Which of these numbers when divided by 6 will result in a repeating decimal?

48 50 51 54 57 58 60 62

38. Write a fraction that is equivalent to 0.20.