

# Academic Algebra I

## Chapter 2 Review (pgs 121-124)

# 2 CHAPTER REVIEW

KNOW THIS VOCABULARY!!!!

### REVIEW KEY VOCABULARY

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|--|--|---|
| <ul style="list-style-type: none"> <li>• whole numbers, integers, positive integer, negative integer, p. 64</li> <li>• rational number, p. 64</li> <li>• opposites, absolute value, p. 66</li> <li>• <del>conditional statement, p. 65</del></li> <li>• <del>if-then statement, p. 65</del></li> <li>• <del>counterexample, p. 66</del></li> </ul> | <ul style="list-style-type: none"> <li>• additive identity, p. 76</li> <li>• additive inverse, p. 76</li> <li>• multiplicative identity, p. 89</li> <li>• <del>equivalent expressions, p. 96</del></li> <li>• distributive property, p. 96</li> <li>• term, coefficient, constant term, like terms, p. 97</li> </ul> | <ul style="list-style-type: none"> <li>• multiplicative inverse, p. 103</li> <li>• square root, <del>radicand, p. 110</del></li> <li>• perfect square, p. 111</li> <li>• irrational number, p. 111</li> <li>• real numbers, p. 112</li> <li>• <del>closure, p. 112</del></li> </ul> |
|--|--|---|

**PLUS:**

- **Properties:** associative, commutative, distributive, identity, inverse, property of 0, property of -1.
- **Chapter 1:** solve, evaluate, simplify, equations, expressions, factors, terms.

### VOCABULARY EXERCISES

Identify the terms, coefficients, constant terms, and like terms of the expression.

1.  $-3x - 5 - 7x - 9$

2.  $-10c - 6 + c$

Terms:	<u><math>-3x, -5, -7x, -9</math></u>	<u><math>-10c, -6, c</math></u>
Coefficients:	<u><math>-3, -7</math></u>	<u><math>-10, 1</math></u>
Constants:	<u><math>-5, -9</math></u>	<u><math>-6</math></u>
Like Terms:	<u><math>(-3x, -7x)</math> and <math>(-5, -9)</math></u>	<u><math>(-10c + c)</math></u>

Tell whether the number is a real number, a rational number, an irrational number, an integer, or a whole number.

3. 0.3

4.  $-\sqrt{8}$

5. -15

6.  $\sqrt{49}$

Real #:	<u>yes</u>	<u>yes</u>	<u>yes</u>	<u>yes</u>
Rational:	<u>yes</u>	<u>no</u>	<u>yes</u>	<u>yes</u>
IRRational:	<u>no</u>	<u>yes</u>	<u>no</u>	<u>no</u>
Integer:	<u>no</u>	<u>no</u>	<u>yes</u>	<u>yes</u>
Whole #:	<u>no</u>	<u>no</u>	<u>no</u>	<u>yes</u>

## REVIEW EXAMPLES AND EXERCISES

Use the review examples and exercises below to check your understanding of the concepts you have learned in each lesson of Chapter 2.

### EXERCISES

Order the numbers in the list from least to greatest.

7.  $-5.2, -\frac{3}{8}, -6, 0.3, -\frac{1}{4}$

8.  $2.1, 0, -\frac{13}{10}, -1.38, \frac{3}{5}$

$-6, -5.2, -\frac{3}{8}, -\frac{1}{4}, 0.3$

$-1.38, -\frac{13}{10}, 0, \frac{3}{5}, 2.1$

For the given value of  $a$ , find  $-a$  and  $|a|$ .

9.  $a = -0.2$

10.  $a = 3$

11.  $a = \frac{7}{8}$

12.  $a = -\frac{6}{11}$

$-a = 0.2$

$-a = -3$

$-a = -\frac{7}{8}$

$-a = \frac{6}{11}$

$|a| = 0.2$

$|a| = 3$

$|a| = \frac{7}{8}$

$|a| = \frac{6}{11}$

### EXERCISES

Find the sum.

13.  $-2 + 5 = 3$

14.  $-6 + (-4) = -10$

15.  $6.2 + (-9.7) = -3.5$

16.  $-4.61 + (-0.79) = -5.4$

17.  $-\frac{4}{7} + (-\frac{9}{14}) = -\frac{8}{14} + -\frac{9}{14} = -\frac{17}{14}$  or  $-1\frac{3}{14}$

18.  $-\frac{4}{5} + \frac{11}{12} = \frac{-48}{60} + \frac{55}{60} = \frac{7}{60}$

19. **BUSINESS** A company has a profit of \$2.07 million in its first year, -\$1.54 million in its second year, and -\$0.76 million in its third year. Find the company's total profit for the three years.

$+2.07 - 1.54 - 0.76 = -2.3 + 2.07 = -0.23$

$-\$0.23$  Total Profit

Find the difference.

20.  $-8 - 3 = -11$

21.  $1 - 11 = -10$

22.  $7.7 - 16.3 = -8.6$

23.  $-20.3 - (-14.2) = -6.1$

24.  $\frac{7}{3} - \frac{11}{3} = -\frac{4}{3}$

or  $-1\frac{1}{3}$

25.  $-\frac{4}{9} - \frac{5}{12}$

$-\frac{16}{36} + -\frac{15}{36} =$

$-\frac{31}{36}$

Evaluate the expression when  $x = 2$  and  $y = -3$ .

26.  $(x - 7) + y$

$$[(2) - 7] + (-3)$$

$$-5 + -3$$

$$\boxed{-8}$$

27.  $\frac{3}{2} - x - y$

$$\frac{3}{2} - (2) - (-3) =$$

$$\frac{3}{2} + (-2) + 3 =$$

$$4.5 - 2 = \boxed{2.5} \text{ or } \boxed{2\frac{1}{2}}$$

28.  $y - (2.4 - x)$

$$(-3) - [2.4 - (2)] =$$

$$-3 - [.4] =$$

$$-3 + -.4 =$$

$$\boxed{-3.4}$$

Find the product.

29.  $15(-4)$

$$\boxed{-60}$$

30.  $-7.5(-8)$

$$\boxed{60}$$

31.  $-\frac{2}{5}(-5)(-9)$

$$= \boxed{-18}$$

Find the product. ~~Justify your steps~~

32.  $-4(-y)(-7)$

$$\boxed{-28y}$$

33.  $-\frac{1}{3}x \cdot (-18)$

$$\boxed{6x}$$

34.  $2.5(-4z)(-2)$

$$\boxed{20z}$$

35. **SWIMMING POOLS** The water level of a swimming pool is 3.3 feet and changes at an average rate of  $-0.14$  feet per day due to water evaporation. What will the water level of the pool be after 4 days?

$$3.3 + 4(-.14) = 3.3 - .56 = \boxed{2.74 \text{ ft water level after 4 days}}$$

Use the distributive property to write an equivalent expression.

36.  $8(5 - x)$

$$40 - 8x =$$

$$\boxed{-8x + 40}$$

37.  $-3(y + 9)$

$$\boxed{-3y - 27}$$

38.  $(z - 4)(-z)$

$$\boxed{-z^2 + 4z}$$

Simplify the expression.

39.  $3(x - 2) + 14$

$$3x - 6 + 14$$

$$\boxed{3x + 8}$$

40.  $9.1 - 4(m + 3.2)$

$$9.1 - 4m - 12.8$$

$$\boxed{-4m - 3.7}$$

41.  $5n + \frac{1}{2}(8n - 7)$

$$5n + 4n - 7/2$$

$$\boxed{9n - 7/2} \text{ or}$$

$$\boxed{9n - 3\frac{1}{2}} \text{ or}$$

$$\boxed{9n - 3.5}$$

42. **PARTY COSTS** You are buying 10 pizzas for a party. Cheese pizzas cost \$11 each, and single topping pizzas cost \$13 each. Write an equation that gives the total cost  $C$  (in dollars) as a function of the number  $p$  of cheese pizzas that you buy. Then find the total cost if you buy 4 cheese pizzas.

KI

10 pizza's  
Cheese - \$11  
single topping - \$13

$C = \text{total cost } (\$)$   
 $p = \# \text{ of cheese pizza's}$

$$\text{EQ: } C = 10(\$13) - (\$13 - \$11)P$$

$$\rightarrow \boxed{C = 130 - 2P}$$

Cost if you buy 4 cheese pizzas

$$C = 130 - 2(4) = \underline{122}$$

$\boxed{\text{Costs } \$122 \text{ For Pizza}}$

Find the quotient.

43.  $56 \div (-4)$

$-14$

44.  $-6 \div \frac{3}{13}$

$-\overset{-2}{6} \cdot \frac{13}{\underset{3}{1}} = -26$

45.  $-\frac{4}{9} \div \left(-\frac{2}{3}\right)$

$-\frac{\overset{-2}{4}}{\underset{9}{9}} \cdot \frac{\overset{-3}{3}}{\underset{2}{2}} = \frac{2}{3}$

46. **SCIENCE** A scientist studies the diving abilities of three seals and records the elevations they reach before swimming back up to the surface. Find the mean of the following elevations (in meters) recorded:  $-380, -307, -354$ .

$Mean = \frac{-380 + -307 + -354}{3} = -347 \text{ m is the mean depth}$

Simplify the expression.

47.  $\frac{24x - 40}{8}$

$\frac{24x}{8} + \frac{-40}{8}$

$3x - 5$

48.  $\frac{-36m + 18}{6}$

$\frac{-36m}{6} + \frac{18}{6}$

$-6m + 3$

49.  $\frac{-18n - 9}{-9}$

$\frac{-18n}{-9} + \frac{-9}{-9}$

$2n + 1$

Evaluate the expression.

50.  $\sqrt{121}$   $11$

51.  $-\sqrt{36}$   $-6$

52.  $\pm\sqrt{81}$   $\pm 9$

53.  $\pm\sqrt{225}$   $\pm 15$

Approximate the square root to the nearest integer.

54.  $\sqrt{97}$   
 $\sqrt{81} - \sqrt{100}$   
 $\sim 10$

55.  $-\sqrt{48}$   
 $\sqrt{36} - \sqrt{49}$   
 $\sim -7$

56.  $-\sqrt{142}$   
 $\sqrt{132} - \sqrt{144}$   
 $\sim -12$

57.  $\sqrt{300}$   
 $\sqrt{289} - \sqrt{324}$   
 $17 - 18$   
 $\sim 17$

Order the numbers in the list from least to greatest.

58.  $-\sqrt{49}, -6.8, 2, \sqrt{3}, 1.58$

$-\sqrt{49}, -6.8, 1.58, \sqrt{3}, 2$

59.  $1.25, \sqrt{11}, -0.3, 0, -\sqrt{4}$

$-\sqrt{4}, -0.3, 0, 1.25, \sqrt{11}$