

Unit 1A Study Guide Answers

The least precise measurement is 12 meters, which has 2 significant digits.
Round the volume to a number that has 2 significant digits: 1900 m^3 .

EXERCISES

1. Shaniqua's bedroom is 12.6 feet long and 8 feet wide. She wants to put a 1 foot high wallpaper border around the room and cover the floor with carpet. How many feet of wallpaper does she need, and how many square feet of carpet? Show your answer with the correct number of significant digits. (Lesson 1.1)

41 ft of wallpaper and 100 ft^2 of carpet

2. Rachel's biscuits require 0.75 cup of milk for 1 batch. Use dimensional analysis to convert this amount into liters. Use the conversion factors $\frac{1 \text{ cup}}{0.5 \text{ pint}}$ to convert cups to pints, $\frac{1 \text{ pint}}{0.5 \text{ quart}}$ to convert pints to quarts, and $\frac{1 \text{ quart}}{0.94 \text{ liter}}$ to convert quarts to liters. Use the correct number of significant digits to give your answer. (Lessons 1.1, 1.2)

0.18 liter

EXERCISES

Simplify. (Lesson 2.1)

3. $8^{\frac{2}{3}} + 100^{\frac{1}{2}}$ 14 4. $1^{\frac{9}{5}}$ 1

5. Tou is working on the stage scenery for a play. He needs to know the area of a circle with a radius of 7 feet. Use the formula $A = 3.14r^2$ to find the area. (Lesson 2.1)

about 153.86 ft²

Using *whole*, *integer*, *rational*, and *irrational*, name all the subsets of the real numbers to which each number belongs. (Lessons 2.1, 2.2)

6. $(-2)^4$ whole, rational, integer

7. $(27)^{\frac{1}{4}}$ irrational

8. $\frac{\sqrt[3]{125}}{5}$ rational, integer

9. $\left(\frac{1}{4}\right)^2$ rational

Tell whether the set is closed under the operation. If it is not closed, give an example that shows that the set is not closed under the operation. (Lesson 2.2)

10. positive irrational numbers; division not closed; $\frac{\sqrt{2}}{\sqrt{2}} = 1$

11. negative rational numbers; multiplication not closed; $-2 \times -2 = 4$

12. negative integers; addition closed

13. positive integers; subtraction not closed; $6 - 10 = -4$

EXERCISES

Evaluate each expression for $x = 2$ and $y = 4$. (Lesson 3.1)

14. $\frac{2x^2 + 3x}{y}$

$3\frac{1}{2}$

15. $(xy)^2 - x + y$

66

16. $(9x - 3y)^2$

36

17. $3x(3y - 5x)$

12

Evaluate each expression for $a = -3$ and $b = 5$. (Lesson 3.1)

18. $a^3 + 2a - 3b$

-48

19. $(b - a)^2 + ab$

49

20. $(4a + 2b)^3 + (ab)^2$

217

21. $(3b^2 - 2a^3) - (6b + 5a)$

114

Simplify. (Lesson 3.2)

22. $2(x + y - 3) - x$

$x + 2y - 6$

24. $15g - 3(5h) + 5g$

$20g - 15h$

26. $5x + 3y^2 - 7y^2 - 8x$

$-3x - 4y^2$

28. $12a^2 + 6a^3 - 9a^2 + 2a^3$

$3a^2 + 8a^3$

23. $2 + (6 - x) + 2x$

$8 + x$

25. $6(m - 3) + 17$

$6m - 1$

27. $5(m^3 + 2n^2) - 8(n^2 - m^3)$

$13m^3 + 2n^2$

29. $-4(x^4 + 2x^2) + 3(-5x^2 + x^4)$

$-x^4 - 23x^2$

Write an algebraic expression for each situation, and then evaluate the expression for the given values. (Lessons 3.1 and 3.3)

- 30.** Samuel earns \$10 per hour plus \$1 per T-shirt he sells. Find his earnings when he works 8 hours and sells 20 T-shirts.

$$10h + s; \$100$$

- 31.** Claire and Li are evenly sharing the cost of 7 yards of red fabric and 3 yards of blue fabric. Find the amount each pays when red fabric is \$6.50 per yard and blue fabric is \$8.00 per yard

$$\frac{7r + 3b}{2}; \$34.75$$

- 32.** Jason is buying 2 hats and 3 scarves for each of his 4 children. Find the amount Jason spends when hats cost \$8.50 and scarves cost \$5.50.

$$4(2h + 3s); \$134$$

- 33.** WorkOut Fitness Center gym charges \$150 per year for membership plus \$5 per visit. Bethany is a member of the fitness center and last year she went to the gym 135 times. Find the amount of money that Bethany spent last year at the gym.

$$150 + 135v; \$825$$
