7.1 EXERCISES

HOMEWORK KEY

★ = **STANDARDIZED TEST PRACTICE** Exs. 28, 41, 42, 45, 46, and 53

◯ = **HINTS AND HOMEWORK HELP** for Exs. 5, 7, 13, 19, 43 at classzone.com

SKILL PRACTICE

1. **VOCABULARY** What is the difference between a ratio and a rate?

2. **VOCABULARY** Copy and complete: "Three gallons to $4.50" and "five gallons to $7.50" are equivalent __?__.

WRITING AND SIMPLIFYING RATIOS **Write the ratio as a fraction in simplest form and two other ways.**

SEE EXAMPLE 1 on p. 343 for Exs. 3–10

3. $\frac{33}{22}$ 4. $\frac{20}{25}$ 5. $\frac{27}{42}$ 6. $\frac{-12}{4}$

7. 51 to 17 8. 26 : 39 9. 28 : 6 10. 35 to 49

MEASUREMENT **Write the equivalent rate.**

SEE EXAMPLE 2 on p. 344 for Exs. 11–18

11. $\frac{60 \text{ mi}}{\text{h}} = \frac{? \text{ mi}}{\text{min}}$ 12. $\frac{32 \text{ oz}}{\text{serving}} = \frac{? \text{ lb}}{\text{serving}}$ 13. $\frac{105 \text{ min}}{\text{game}} = \frac{? \text{ h}}{\text{game}}$ 14. $\frac{\$1.44}{\text{ft}} = \frac{\$?}{\text{yd}}$

15. $\frac{50 \text{ ft}}{\text{sec}} = \frac{? \text{ ft}}{\text{min}}$ 16. $\frac{87 \text{ cents}}{30 \text{ in.}} = \frac{? \text{ cents}}{\text{ft}}$ 17. $\frac{15 \text{ min}}{\text{quarter}} = \frac{? \text{ hr}}{\text{quarter}}$ 18. $\frac{20 \text{ mi}}{\text{h}} = \frac{? \text{ ft}}{\text{h}}$

UNIT RATES **Write the rate as a unit rate. Check for reasonableness.**

SEE EXAMPLE 3 on p. 344 for Exs. 19–26

19. $\frac{24 \text{ adults}}{6 \text{ cars}}$ 20. $\frac{80 \text{ mi}}{4 \text{ h}}$ 21. $\frac{18 \text{ degrees}}{6 \text{ min}}$ 22. $\frac{610 \text{ rotations}}{5 \text{ min}}$

23. $\frac{50 \text{ oz}}{5 \text{ servings}}$ 24. $\frac{-75 \text{ ft}}{20 \text{ sec}}$ 25. $\frac{-34 \text{ m}}{8 \text{ sec}}$ 26. $\frac{3 \text{ lb}}{\$2}$

27. **ERROR ANALYSIS** Your friend multiplied $\frac{14 \text{ times}}{\text{day}}$ by $\frac{1 \text{ week}}{7 \text{ days}}$ to get $\frac{2 \text{ times}}{\text{week}}$ as an equivalent ratio. Describe and correct the error that your friend made in writing the equivalent rate.

28. ★ **MULTIPLE CHOICE** Which rate is equivalent to 232 miles per 4 hours?

(A) $\frac{58 \text{ mi}}{4 \text{ h}}$ (B) $\frac{174 \text{ mi}}{3 \text{ h}}$ (C) $\frac{229 \text{ mi}}{1 \text{ h}}$ (D) $\frac{116 \text{ mi}}{1 \text{ h}}$

COMPARING RATIOS **Tell whether the ratios are equivalent.**

29. 3 to 12 and 2 to 6 30. 6 : 18 and 10 : 30 31. 15 : 35 and 18 : 42

ALGEBRA **Find a value of the variable that makes the ratios equivalent.**

32. $\frac{x}{8} = \frac{4}{16}$ 33. $\frac{9}{c} = \frac{27}{30}$ 34. $\frac{6}{10} = \frac{15}{n}$ 35. $\frac{2}{12} = \frac{z}{18}$

36. $\frac{8}{x} = \frac{x}{18}$ 37. $\frac{16}{y} = \frac{y}{4}$ 38. $\frac{3}{a} = \frac{a}{27}$ 39. $\frac{t}{2} = \frac{18}{t}$

40. **CHALLENGE** Write all pairs of equivalent ratios that use the numbers 6, 9, 10, and 15 exactly once.

PROBLEM SOLVING

EE EXAMPLE 1
n p. 343
or Ex. 41

41. ★ **WRITING** The aspect ratio of a TV screen is the ratio of its length to its width. The aspect ratio of a *standard* TV screen is 4 : 3. The aspect ratio of a *wide screen* TV in the United States is 16 : 9. *Describe* how to tell whether a TV has a standard or wide screen, given its length and width.

EE EXAMPLE 2
n p. 344
or Exs. 42–43

42. ★ **OPEN-ENDED MATH** About 1 of every 10 people is left-handed. How many people in your math class would you predict are left-handed? *Explain*.

43. **CLOCKS** A clock chimes 4 times each hour. How many times does it chime in a week?

EE EXAMPLE 3
n p. 344
or Ex. 44

44. **WAGES** You are paid $47.25 for 7 hours. How much are you paid per hour?

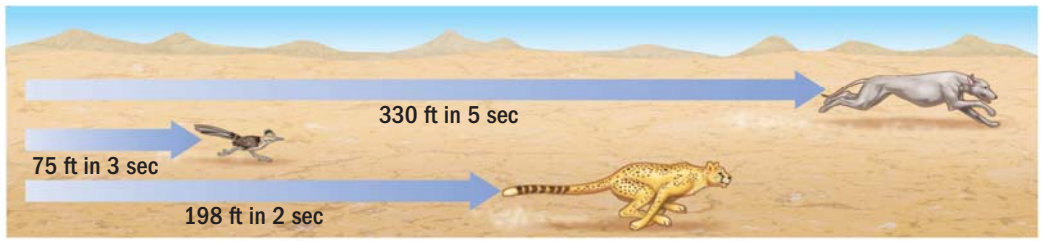
45. ★ **MULTIPLE CHOICE** The table shows the costs of oranges at four grocery stores. Which grocery store prices its oranges using a constant unit rate?

Ⓐ Store A Ⓑ Store B

Ⓒ Store C Ⓓ Store D

Amount	Cost of Oranges at Four Stores			
	A	B	C	D
10-lb bag	$11.70	$11.70	$12.00	$12.00
20-lb bag	$22.90	$23.40	$24.00	$22.00
30-lb bag	$33.60	$35.10	$35.00	$32.00

46. ★ **SHORT RESPONSE** At top speed, a greyhound, a roadrunner, and a cheetah can achieve the following distances in the given length of time. Which animal is the fastest? Which animal is the slowest? *Explain* your reasoning.



47. **CHALLENGE** Elliot and Colin both bring pretzels to school for a snack. The ratio of the number of pretzels Elliot brings to the number of pretzels Colin brings is 5 to 1. Elliot gives four pretzels to Colin, so the ratio is 3 to 1. How many pretzels does Elliot now have? *Explain*.

MIXED REVIEW

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esson 7.2 in
xs. 48–51

Solve the equation. Check your solution. *(p. 122)*

48. $3c = 18$ **49.** $9x = -81$ **50.** $\frac{v}{4} = -2$ **51.** $\frac{n}{10} = 8$

52. Solve the inequality $10y + 4 < 24$ and graph the solution. *(p. 318)*

53. ★ **MULTIPLE CHOICE** What is the radius of a circle with a circumference of 39.25 feet? Use 3.14 for π. *(p. 312)*

Ⓐ 6.25 ft Ⓑ 12.5 ft Ⓒ 19.625 ft Ⓓ 39.25 ft