Name _____ Class _____ Date _____

Review

Chapter 2

Lessons 2-1 to 2-4

Solve each equation.

$\frac{x+5}{3} = 7$

1. $8p - 3 = 13$

$+3 \quad +3$

$8p = 16$

$p = 2$

2. $8j - 5 - j = 67$

$9j - 5 = 67$

$+5 \quad +5$

$9j = 72$

$j = 8$

3. $-n - 8.5 = 14.2$

$-8.5 \quad -8.5$

$-n = 5.7$

$n = -5.7$

4. $6(t + 5) = -36$

$6t + 30 = -36$

$-30 \quad -30$

$6t = -66$

$t = -11$

5. $m - 9 = 11$

$+9 \quad +9$

$m = 20$

6. $\frac{21}{12}(s - 5) = 7.5$ $\frac{2}{1}$

$S + 5 = 15$

$-5 \quad -5$

$S = 10$

7. $7h + 2h - 3 = 15$

$9h - 3 = 15$

$+3 \quad +3$

$9h = 18$

$h = 2$

8. $\frac{12}{112}x = \frac{3}{14} \cdot \frac{14}{7}$ $\frac{6}{7}$

$x = \frac{18}{49}$

9. $3r - 8 = -32$

$+8 \quad +8$

$3r = -24$

$r = -8$

10. $8g - 10g = 4$

$-2g = 4$

$g = -2$

11. $-3(5 - t) = 18$

$-15 + 3t = 18$

$+15 \quad +15$

$3t = 33$

$t = 11$

12. $3(c - 4) = -9$

$3c - 12 = -9$

$+12 \quad +12$

$3c = 3$

$c = 1$

Define a variable and write an equation for each situation. Then solve.

13. Your test scores for the semester are 87, 84, and 85. Can you raise your test average to 90 with your next test?

$(4)\frac{87 + 84 + 85 + x}{4} = 90\ (4)$

$256 + x = 360$

$-256 \quad -256$

$x = 104$

No, if the highest score is 100.

Maybe you can if there is extra credit.

14. You spend $\frac{1}{2}$ of your allowance each week on school lunches. Each lunch costs $1.25. How much is your weekly allowance?

$\frac{1}{2}x = \$1.25(5)$

$\frac{2}{1} \cdot \frac{1}{2}x = \$6.25 \cdot 2$

$x = \$12.50$

Solve each equation. If the equation is an identity, write *identity*. If it has no solution, write *no solution*.

15. $4h + 5 = 9h$

$\frac{5}{5} = \frac{5h}{5}$

$1 = h$

16. $2(3x - 6) = 3(2x - 4)$

$6x - 12 = 6x - 12$

$-6x \quad -6x$

$-12 = -12$ ID

17. $7t = 80 - 9t$

$-9t \quad -9t$

$\frac{-2t}{-2} = \frac{80}{-2}$

$t = -40$

18. $m + 3m = 4$

$\frac{4m}{4} = \frac{4}{4}$

$m = 1$

19. $-b + 4b = 8b - b$

$3b = 7b$

$-3b \quad -3b$

$0 = 4b$

$b = 0$

20. $6p + 1 = 3(2p + 1)$

$6p + 1 = 6p + 3$

$-6p \quad -6p$

$1 = 3$ No Sol

21. $10z - 5 + 3z = 8 - z$

$13z - 5 = 8 - z$

$+z \quad +z$

$14z - 5 = 8$

$+5 \quad +5$

$14z = 13$

$z = \frac{13}{14}$

22. $3(g - 1) + 7 = 3g + 4$

$3g - 3 + 7 = 3g + 4$

$3g + 4 = 3g + 4$

$-3g \quad -3g$

$4 = 4$ ID

23. $17 - 20q = (-13 - 5q)4$

$17 - 20q = -52 - 20q$

$+20q \quad +20q$

$17 = -52$ No Sol

Write an equation to model each situation. Then solve.

24. A DVD club charges a monthly membership fee of $4.95 and $11.95 for each DVD purchased. If a customer's bill for the month was $64.70, how many DVDs did the customer purchase?

x = #DVD's

$4.95 + 11.95x = 64.70$

$-4.95 \quad -4.95$

$11.95x = 59.75$

$x = 5$ DVD's

25. A lawyer charges $100 per month to be put on retainer for a client. The lawyer also charges an hourly rate of $75 for work done. How many hours does the lawyer have to work for a client, in one month, to charge $625?

x = hours

$100 + 75x = 625$

$-100 \quad -100$

$75x = 525$

$x = 7$ hours

26. A rectangular pool is twice as long as it is wide. What are the dimensions of the pool if the perimeter is 42 yd?

$P = 2l + 2w$

$l = 2w$

$42 = 2(2w) + 2w$

$42 = 4w + 2w$

$42 = 6w$

$w = 7$ yd

$l = 14$ yd

27. Two friends rent an apartment together. They agree that one person will pay 1.5 times what the other person pays. If the rent is $850, how much will each friend pay?

x = rent of other person

$x + 1.5x = \$850$

$\frac{2.5x}{2.5} = \frac{850}{2.5}$

$x = \$340$

$510 1 person

$340 other person

28. A shopper's discount club charges a monthly fee of $15 and sells gasoline for $2.05 per gallon. The gas station across the street sells gasoline for $2.35 per gallon and charges no fee. How many gallons of gasoline would you have to buy in one month to spend the same amount at either store?

x = gallons

$\$15 + \$2.05x = \$2.35x$

$-2.05x \quad -2.05x$

$15 = .30x$

$x = 50$ gallons

29. Michael and Kevin are running. Kevin gets a 3-mile head start and runs at a rate of 5.5 mi/h. Michael runs at a rate of 7 mi/h. How many hours will it take Michael to catch up with Kevin?

x = hours

$3 + 5.5x = 7x$ (K, M)

$-5.5x \quad -5.5x$

$\frac{3}{1.5} = \frac{1.5x}{1.5}$

$2 = x$

2 hours

Lesson 2-5

Solve each equation for y. Then find the value of y for x.

30. $y + 3x = 8; x = -2$

$y = 8 - 3x$

$y = 8 + 3(-2)$

$y = 8 + 6$

$y = 14$

31. $4x - 2y = 15; x = 6$

$-2y = 15 - 4x$

$\frac{-2y}{-2} = \frac{15 - 4x}{-2}$

$y = \frac{15 - 4x}{-2}$

$y = \frac{15 - 4(6)}{-2}$

$y = \frac{15 - 24}{-2}$

$y = \frac{-9}{-2}$

$y = 4\frac{1}{2}$

32. $x = 9 - 3y; x = 12$

$\frac{x - 9}{-3} = \frac{-3y}{-3}$

$\frac{x - 9}{-3} = y$

$\frac{12 - 9}{-3} = y$

$\frac{3}{-3} = y$

$y = -1$

Solve each equation for x.

33. $px + qx = r$

$(p + q)x = r$

$x = \frac{r}{p + q}$

34. $c = b - bx$

$c - b = -bx$

$\frac{c - b}{-b} = x$

35. ~~$\frac{x - 3}{4} = x$~~ Don't Do #35

Lesson 2-6

Convert the given amount to the given unit.

36. 12 ft; inches

$\frac{12ft}{1} \times \frac{12in}{1ft} = 144in$

37. 350 cm; meters

$\frac{350cm}{1} \times \frac{1m}{100cm} = \frac{350m}{100} = 3.5m$

38. 255 min; hours

$\frac{255min}{1} \times \frac{1hr}{60min} = \frac{255}{60} = 4\frac{1}{2}hrs$

39. 11 yd; meters

$\frac{11yd}{1} \times \frac{1m}{1.1yd} = 10yd$

40. 35 lb; kilograms

$\frac{35lb}{1} \times \frac{1kg}{2.2lb} = \frac{35kg}{2.2} = 15.9Kg$

41. 48 cm; feet

$\frac{48cm}{1} \times \frac{1ft}{30.5cm} = 1.6ft$

42. One bakery is selling 6 muffins for $7.25. Another bakery is selling 8 muffins for $9.29. Which bakery has the better deal?

$\frac{\$7.25}{6m} = \frac{\$1.21}{1m}$ $\frac{\$9.29}{8m} = \frac{\$1.16}{1m}$

43. A 12-ounce can of green beans is sold for $1.45. What is the price per pound?

$\frac{\$1.45}{12oz} = \frac{.12}{1oz} \times \frac{16oz}{1lb} = \frac{\$1.93}{1lb}$

44. A sailboat is traveling at a speed of 10 nautical miles per hour. If 1 nautical mile is 6076 ft, what is the speed of the sailboat in feet per second?

$\frac{10nm}{1hr} \times \frac{6076ft}{1nm} \times \frac{1hr}{3600sec} = \frac{16.9ft}{1sec.}$

Lesson 2-7

Solve each proportion.

45. $\frac{3}{4} = \frac{-6}{m}$ $m = -8$

46. $\frac{t}{7} = \frac{3}{21}$ $t = 1$

47. $\frac{9}{j} = \frac{3}{16}$ $j = 48$

48. $\frac{2}{5} = \frac{w}{65}$ $w = 26$

49. $\frac{s}{15} = \frac{4}{45}$ $s = 1\frac{15}{45} = 1\frac{1}{3}$

50. $\frac{9}{4} = \frac{x}{10}$ $x = 22\frac{1}{2}$

51. $\frac{10}{q} = \frac{8}{62}$ $q = 77\frac{1}{2}$

52. $\frac{3}{2} = \frac{18}{y}$ $y = 12$

53. $\frac{x-3}{15} = \frac{2}{5}$ $30 = 5(x-3)$, $30 = 5x - 15$, $x = 9$

54. $\frac{y+8}{6} = \frac{y}{2}$ $6y = 2(y+8)$, $6y = 2y + 16$, $4y = 16$, $y = 4$

55. $\frac{5-a}{8} = \frac{4}{7}$ $32 = 7(5-a)$, $32 = 35 - 7a$, $-3 = -7a$, $a = \frac{3}{7}$

56. $\frac{9}{b-4} = \frac{12}{5}$ $12(b-4) = 45$, $12b - 48 = 45$, $12b = 93$, $b = 7\frac{9}{12} = 7\frac{3}{4}$

57. If 3 pizzas serve 12 people, how many pizzas are needed for a pizza party with 68 people?

$\frac{3pz}{12pl.} = \frac{x}{68pl.}$ $x = 17$ pizzas

58. You are planting a vegetable garden with 10 rows. If it took 24 minutes to plant the first 3 rows, how long will it take to plant all 10 rows of the garden?

$\frac{24min}{3r} = \frac{x}{10r}$ $x = 80min$

59. Approximately 8 out of every 25 families in the United States own dogs. If you asked 90 families, about how many of them would you expect to own dogs?

$\frac{8}{25} = \frac{x}{90}$ $x = 28.8$ 28 or 29

Lesson 2-8

The figures in each pair are similar. Find the missing length.

60. The scale on a map is 1 in. : 15 mi. The distance between two cities is 25 mi. Find the distance in inches between the cities on the map.

$\frac{1in}{15mi} = \frac{x}{25mi}$ $x = 1\frac{2}{3}$ in

61. A 40 : 1 scale model of an airplane is being used to conduct wind-tunnel tests. If the model is 4.5 feet long, how long is the actual airplane?

$\frac{40}{1} = \frac{x}{4.5}$ $x = 180ft$