

# MAT0022 - Chapter 6

## Math Connections

### Valencia College

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

#### 6.1

Write the ratio in fractional notation in lowest terms.

- 1) 6 megabytes to 15 megabytes 1) \_\_\_\_\_
  
- 2) 18 disks to 59 disks 2) \_\_\_\_\_
  
- 3) 3 inches to 5 inches 3) \_\_\_\_\_
  
- 4) 15 miles to 50 miles 4) \_\_\_\_\_
  
- 5) 6 inches to 7 feet 5) \_\_\_\_\_
  
- 6) 11 nickels to 14 dollars 6) \_\_\_\_\_
  
- 7) 49 cents to 5 dollars 7) \_\_\_\_\_

Write the described ratio in fractional notation in lowest terms.

- 8) Find the ratio of the width to the length of the rectangular dog run sketched below. 8) \_\_\_\_\_

4 meters (width)



7.5 meters (length)

- 9) Find the ratio of the width to the perimeter of the rectangular dog run sketched below. 9) \_\_\_\_\_

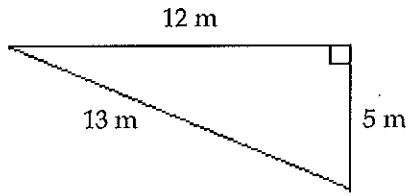
10 yards (width)



14 yards (length)

10) Find the ratio of the shortest side to the perimeter of the right triangle.

10) \_\_\_\_\_



Solve the proportion.

11)  $\frac{3}{8} = \frac{x}{16}$

11) \_\_\_\_\_

12)  $\frac{5}{6} = \frac{x}{2}$

12) \_\_\_\_\_

13)  $\frac{2}{5} = \frac{9}{x}$

13) \_\_\_\_\_

14)  $\frac{4x}{5} = \frac{4}{7}$

14) \_\_\_\_\_

15)  $\frac{x+1}{2x+4} = \frac{5}{2}$

15) \_\_\_\_\_

16)  $\frac{3}{3x-2} = \frac{7}{8}$

16) \_\_\_\_\_

17)  $\frac{8}{x+5} = \frac{4}{2x}$

17) \_\_\_\_\_

18)  $\frac{2}{3x-3} = \frac{9}{x}$

18) \_\_\_\_\_

Solve.

19) The ratio of the weight of an object on Earth to an object on Planet X is 3 to 8. If a person weighs 250 pounds on Earth, find his weight on Planet X. (Round to the nearest whole number, if necessary.)

19) \_\_\_\_\_

20) The ratio of a quarterback's completed passes to attempted passes is 3 to 4. If he attempted 12 passes, find how many passes he completed. Round to the nearest whole number if necessary.

20) \_\_\_\_\_

21) On an architect's blueprint, 1 inch corresponds to 3 feet. Find the length of a wall represented by a line  $6\frac{1}{3}$  inches long on the blueprint. Round to the nearest tenth if necessary.

21) \_\_\_\_\_

- 22) The scale on a map states that 1 centimeter corresponds to 30 kilometers. On the map, two cities are 1.6 cm apart. Find the actual distance. 22) \_\_\_\_\_
- 23) One pound of a product yields  $2\frac{1}{4}$  cups. How many pounds of this product will be required by a recipe that calls for 6 cups of the product? 23) \_\_\_\_\_
- 24) A punch recipe calls for mixing 7 parts of grape juice with 3 parts of strawberry juice. Find how much grape juice should be mixed with 63 ounces of strawberry juice. 24) \_\_\_\_\_
- 25) The gasoline/oil ratio for a certain scooter is 50 to 1. If 1 gallon equals 128 fluid ounces, how many fluid ounces of oil should be mixed with 20 gallons of gasoline? Round the answer to the nearest whole ounce. 25) \_\_\_\_\_
- 26) The adult daily dosage for a certain medicine is 125 mg (milligrams) for every 20 pounds of body weight. If the patient weighs 240 pounds and he is to receive a dose of this medicine every 6 hours, find the amount of medicine he should receive in each dose. 26) \_\_\_\_\_

## 6.2

Write the percent as a decimal.

- 27) 72% 27) \_\_\_\_\_
- 28) 9% 28) \_\_\_\_\_
- 29) 100% 29) \_\_\_\_\_
- 30) 50% 30) \_\_\_\_\_
- 31) 254% 31) \_\_\_\_\_
- 32) 68.3% 32) \_\_\_\_\_
- 33) 4.7% 33) \_\_\_\_\_
- 34) 500% 34) \_\_\_\_\_
- 35) 63.70% 35) \_\_\_\_\_
- 36) 0.98% 36) \_\_\_\_\_

Write the percent as a fraction or mixed number in simplest form.

- 37) 50% 37) \_\_\_\_\_
- 38) 2.5% 38) \_\_\_\_\_

39)  $10\frac{1}{4}\%$

39) \_\_\_\_\_

40)  $21\frac{7}{8}\%$

40) \_\_\_\_\_

**Write the decimal as a percent.**

41) 7.4

41) \_\_\_\_\_

42) 11

42) \_\_\_\_\_

43) 0.5462

43) \_\_\_\_\_

44) 9.00

44) \_\_\_\_\_

45) 0.3

45) \_\_\_\_\_

**Write the fraction or mixed number as a percent.**

46)  $\frac{21}{25}$

46) \_\_\_\_\_

47)  $\frac{13}{15}$

47) \_\_\_\_\_

48)  $\frac{75}{2}$

48) \_\_\_\_\_

49)  $\frac{7}{16}$

49) \_\_\_\_\_

50)  $\frac{1}{3}$

50) \_\_\_\_\_

51)  $2\frac{3}{10}$

51) \_\_\_\_\_

**Solve.**

52) Video games made up 67.5% of the total revenue for a small specialty store. Write this percent as a decimal.

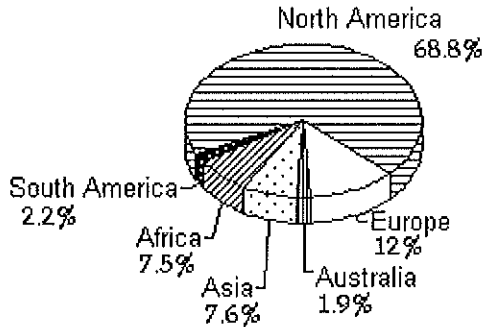
52) \_\_\_\_\_

53) In a surveyed area, 44.5% of the residents signed up for the local park district pool pass. Write this percent as a decimal.

53) \_\_\_\_\_

54) For a recruitment brochure, a college presented the following graph indicating the continental homes of its student population.

54) \_\_\_\_\_



Write the percent of students from Australia as a fraction in simplest form.

55) In a large city, 0.482 of the budget went toward city workers' salaries. Write this decimal as a percent.

55) \_\_\_\_\_

56) Approximately 13.7% of all students at a city college commute to school. Write this percent as a fraction or mixed number in simplest form.

56) \_\_\_\_\_

### 6.3

Translate the question into an equation. Do not solve.

57) 94% of 13 is what number?

57) \_\_\_\_\_

58) What number is 69% of 89?

58) \_\_\_\_\_

59) 70% of what number is 82?

59) \_\_\_\_\_

60) 2.1 is 50% of what number?

60) \_\_\_\_\_

61) What percent of 1 is 73?

61) \_\_\_\_\_

62) 0.3 is what percent of 3?

62) \_\_\_\_\_

Translate to an equation and solve.

63) 75% of 84 is what number?

63) \_\_\_\_\_

64) What number is 36% of 35?

64) \_\_\_\_\_

65) 15 is 3% of what number?

65) \_\_\_\_\_

66) 70% of what number is 77?

66) \_\_\_\_\_

67) 1.2 is 12% of what number?

67) \_\_\_\_\_

68) 77 is what percent of 70?

68) \_\_\_\_\_

- 69) 11 is what percent of 25? 69) \_\_\_\_\_
- 70) 0.5 is 10% of what number? 70) \_\_\_\_\_
- 71) 150% of 12 is what number? 71) \_\_\_\_\_
- 72) 134.9 is  $9\frac{1}{2}$ % of what number? 72) \_\_\_\_\_
- 73) 143 is what percent of 55? 73) \_\_\_\_\_
- 74) What number is 37% of 80? 74) \_\_\_\_\_
- 75) What percent of 145 is 60.9? 75) \_\_\_\_\_
- 76) 128% of what number is 64? 76) \_\_\_\_\_
- 77) 0.5% of what number is 7.5? 77) \_\_\_\_\_
- 78) 315 is what percent of 420? 78) \_\_\_\_\_
- 79) 9.5% of 19,308 is what number? 79) \_\_\_\_\_
- 80) What percent of 75,524 is 67,216.36? 80) \_\_\_\_\_

## 6.4

Translate to a proportion and solve. Round to the nearest hundredth, if necessary.

- 81) 15 is 1% of what number? 81) \_\_\_\_\_
- 82) 44.8 is what percent of 28? 82) \_\_\_\_\_
- 83) 140% of what number is 84? 83) \_\_\_\_\_
- 84) 5% of 600 is what number? 84) \_\_\_\_\_
- 85) What number is 82% of 318? 85) \_\_\_\_\_
- 86) 4.5 is what percent of 17.5? 86) \_\_\_\_\_
- 87) What number is 44% of 46? 87) \_\_\_\_\_
- 88) 162 is what percent of 90? 88) \_\_\_\_\_

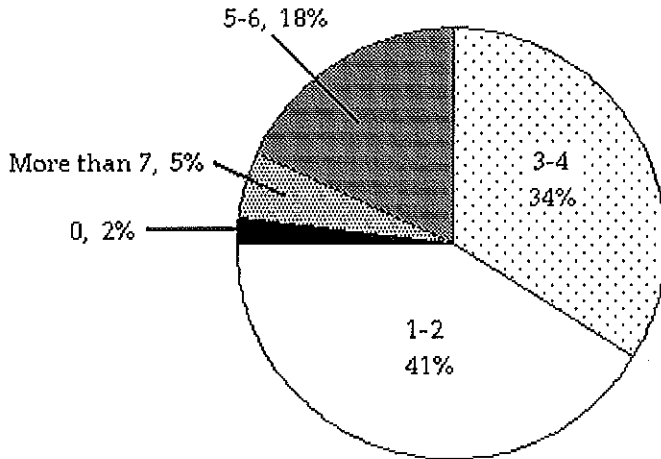
Solve. Round to the nearest tenth, if necessary.

89) 8953 is 122% of what number?

89) \_\_\_\_\_

## 6.5

The circle graph below shows the number of pizzas consumed by college students in a typical month. Use the graph to answer the question.



90) If State University has approximately 37,000 students, about how many would you expect to consume 5-6 pizzas in a typical month?

90) \_\_\_\_\_

Solve. Round your answer to the nearest whole.

91) Patricia got 54 out of the 108 questions right on last Monday's test. What percent of the test did she do correctly?

91) \_\_\_\_\_

Solve. If necessary, round percents to the nearest tenth, dollar amounts to the nearest cent, and all other numbers to the nearest whole.

92) Last year, Nora bought a share of stock for \$40.75. She was paid a dividend of \$4.89. Determine what percent of the stock price is the dividend.

92) \_\_\_\_\_

93) In a recent survey of 360 people, 72 said that their favorite color of car was red. What percent of the people surveyed liked red cars?

93) \_\_\_\_\_

94) 20% of the teachers in a school are female. If there are 690 teachers altogether, how many teachers are female?

94) \_\_\_\_\_

95) 75% of the employees in a company are female. If there are 48 employees altogether, how many employees are female?

95) \_\_\_\_\_

96) Roger earned \$850. If Roger gave 5% to charity, how much did he give to charity?

96) \_\_\_\_\_

97) The enrollment at a local college decreased by 11% over last year's enrollment of 2900. Find the decrease in enrollment.

97) \_\_\_\_\_

For the food described, find the percent of total calories from fat. If necessary, round to the nearest tenth of a percent.

98) Salad dressing serving size 40 tablespoons.

98) \_\_\_\_\_

Calories	
Total	40
From fat	16

99)

<b>Nutrition Facts</b>	
Serving Size 12 crackers (30g)	
Servings Per Container About 10	
<b>Amount Per Serving</b>	
Calories 115	
Calories from Fat 45	
<b>% Daily Value</b>	
Total Fat 4g	6%
Saturated Fat 0.5g	3%
Polyunsaturated Fat 0g	
Monounsaturated Fat 1.5g	
Cholesterol 0mg	
0%	
Sodium 220mg	9%
Total Carbohydrate 21g	7%
Dietary Fiber 2g	7%
Sugars 4g	
Protein 2g	
Vitamin A 0%	Vitamin C 0%
Calcium 5%	
Iron 2%	
Phosphorus 9	

99) \_\_\_\_\_

Solve. If necessary, round percents to the nearest tenth, dollar amounts to the nearest cent, and all other numbers to the nearest whole.

100) A union contract calls for a 3.8% salary increase for all employees. Determine the increase for a worker who is currently making \$23,780. 100) \_\_\_\_\_

101) Last year the profit for a company was \$563,000. This year's profit decreased by 4.2%. Find this year's profit. 101) \_\_\_\_\_

102) The enrollment at a local college increased 14% over last year's enrollment of 2100. Find the increase in enrollment. 102) \_\_\_\_\_

103) The enrollment at a local college increased 10% over last year's enrollment of 2400. Find the current enrollment. 103) \_\_\_\_\_

104) Attendance this year at the homecoming football game is 147% of what it was last year. If last year's homecoming football game attendance was 41,000, what is this year's attendance? (Round to the nearest integer, if necessary.) 104) \_\_\_\_\_



- 105) A company increased the number of its employees from 600 to 645. What was the percent increase in employees? 105) \_\_\_\_\_
- 106) Before taking a typing course, Leo could type 20 words per minute. By the end of the course, he was able to type 50 words per minute. Find the percent increase. 106) \_\_\_\_\_
- 107) In the past ten years, the population of a city decreased from 95,000 to 85,000. Find the percent decrease. 107) \_\_\_\_\_
- 108) Due to a lack of funding, the number of students enrolled at City College went from 7000 last year to 3000 this year. Find the percent decrease in enrollment. 108) \_\_\_\_\_

## 6.6

Solve.

- 109) What is the sales tax on a radio priced at \$170 if the sales tax rate is 8.6%? 109) \_\_\_\_\_
- 110) A watch has a purchase price of \$24. If the sales tax on this purchase is \$2.16, find the sales tax rate. 110) \_\_\_\_\_
- 111) A radio costs \$107 and a set of headphones costs \$50. What is the total price for purchasing these items if the sales tax rate is 6.5%? 111) \_\_\_\_\_

Solve.

- 112) A sales representative is paid a commission rate of 4.6%. Find her commission if she sold \$116,910 worth of goods last month. 112) \_\_\_\_\_
- 113) A salesperson earned a commission of \$1215 for selling \$24,300 worth of batteries to various stores. Find the commission rate. 113) \_\_\_\_\_
- 114) A salesperson earned \$3560 for selling chemicals to industry. If his commission rate is 8%, find the selling price of the chemicals. 114) \_\_\_\_\_
- 115) A house sold for \$217,000 and the real estate agent earned a commission of \$8897. Find the commission rate. 115) \_\_\_\_\_
- 116) Find the amount of discount when the original price is \$43.00 and the discount rate is 10%. 116) \_\_\_\_\_
- 117) Find the sale price when the original price is \$67.90 and the discount rate is 40%. 117) \_\_\_\_\_
- 118) A \$2400 necklace is on sale at 25% off. Find the discount. 118) \_\_\_\_\_
- 119) Find the discount rate when the original price is \$124.00 and the amount of the discount is \$37.20. 119) \_\_\_\_\_
- 120) Find the original price when the discount rate is 55% and the amount of discount is \$ 503.25. 120) \_\_\_\_\_

- 121) Find the discount rate when the original price is \$107.00 and the amount of the discount is \$42.80. 121) \_\_\_\_\_
- 122) Find the original price when the discount rate is 30% and the amount of discount is \$144.00. 122) \_\_\_\_\_
- 123) A diamond necklace normally sells for \$27,370. If it is first discounted by 15% and then taxed at 7.5%, find the total price. 123) \_\_\_\_\_
- 124) Latasha and Sharon ordered out for pizza. The bill was for \$19.26. How much did they give the delivery person to pay for the pizza along with a 10% tip, rounded to the nearest dollar? 124) \_\_\_\_\_
- 125) Find the simple interest when: Principal = \$280, Rate = 9%, Time = 4 years. 125) \_\_\_\_\_
- 126) Find the simple interest when: Principal = \$630, Rate = 7.5%, Time = 2 years. 126) \_\_\_\_\_
- 127) Corrin borrows \$4800 and agrees to pay it back in 5 years. If the simple interest rate is 8%, find the total amount she pays back. 127) \_\_\_\_\_
- 128) \$99,000 is borrowed to buy a house. If the simple interest rate on the 30-year loan is 9.25%, find the total amount paid on the loan. 128) \_\_\_\_\_
- 129) A money market fund advertises a simple interest rate of 7%. Find the total amount received on an investment of \$12,000 for 15 months. 129) \_\_\_\_\_

Answer Key  
Testname: 22CH6

- 1)  $\frac{6}{15}$
- 2)  $\frac{18}{59}$
- 3)  $\frac{3}{5}$
- 4)  $\frac{3}{10}$
- 5)  $\frac{1}{14}$
- 6)  $\frac{11}{280}$
- 7)  $\frac{49}{500}$
- 8)  $\frac{8}{15}$
- 9)  $\frac{5}{24}$
- 10)  $\frac{1}{6}$
- 11) 6
- 12)  $\frac{5}{3}$
- 13)  $\frac{45}{2}$
- 14)  $\frac{5}{7}$
- 15)  $-\frac{9}{4}$
- 16)  $\frac{10}{21}$
- 17)  $\frac{5}{3}$
- 18)  $\frac{27}{25}$
- 19) 667 lb
- 20) 9 passes
- 21) 19 ft
- 22) 48 km
- 23)  $2\frac{2}{3}$  lb
- 24) 147 oz
- 25) 51 fl oz
- 26) 375 mg
- 27) 0.72

Answer Key  
Testname: 22CH6

- 28) 0.09
- 29) 1
- 30) 0.5
- 31) 2.54
- 32) 0.683
- 33) 0.047
- 34) 5
- 35) 0.637
- 36) 0.0098
- 37)  $\frac{1}{2}$
- 38)  $\frac{1}{40}$
- 39)  $\frac{41}{400}$
- 40)  $\frac{7}{32}$
- 41) 740%
- 42) 1100%
- 43) 54.62%
- 44) 900%
- 45) 30%
- 46) 84%
- 47)  $86\frac{2}{3}\%$
- 48) 3750%
- 49)  $43\frac{3}{4}\%$
- 50)  $33\frac{1}{3}\%$
- 51) 230%
- 52) 0.675
- 53) 0.445
- 54)  $\frac{19}{1000}$
- 55) 48.2%
- 56)  $\frac{137}{1000}$
- 57)  $94\% \cdot 13 = x$
- 58)  $x = 69\% \cdot 89$
- 59)  $70\% \cdot x = 82$
- 60)  $2.1 = 50\% \cdot x$
- 61)  $x \cdot 1 = 73$
- 62)  $0.3 = x \cdot 3$
- 63) 63
- 64) 12.6
- 65) 500
- 66) 110

Answer Key  
Testname: 22CH6

- 67) 10
- 68) 110%
- 69) 44%
- 70) 5
- 71) 18
- 72) 1420
- 73) 260%
- 74) 29.6
- 75) 42%
- 76) 50
- 77) 1500
- 78) 75%
- 79) 1834.26
- 80) 89%
- 81) 1500
- 82) 160%
- 83) 60
- 84) 30
- 85) 260.76
- 86) 25.71%
- 87) 20.24
- 88) 180%
- 89) 7338.5
- 90) 6660 students
- 91) 50%
- 92) 12%
- 93) 20%
- 94) 138 teachers
- 95) 36 employees
- 96) \$42.50
- 97) 319 students
- 98) 40%
- 99) 39.1%
- 100) \$903.64
- 101) \$539,354.00
- 102) 294 students
- 103) 2640 students
- 104) 60,270 people
- 105) 7.5%
- 106) 150%
- 107) 10.5%
- 108) 57.1%
- 109) \$14.62
- 110) 9%
- 111) \$167.21
- 112) \$5377.86
- 113) 5%
- 114) \$44,500
- 115) 4.1%
- 116) \$4.30

Answer Key  
Testname: 22CH6

- 117) \$40.74
- 118) \$600.00
- 119) 30%
- 120) \$915.00
- 121) 40%
- 122) \$480.00
- 123) \$25,009.34
- 124) \$21
- 125) \$100.80
- 126) \$94.50
- 127) \$6720
- 128) \$373,725.00
- 129) \$13,050.00