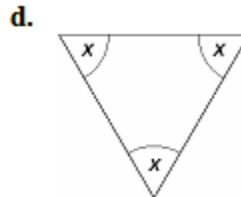
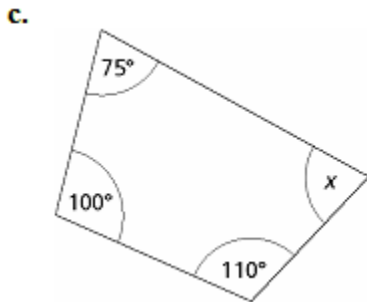
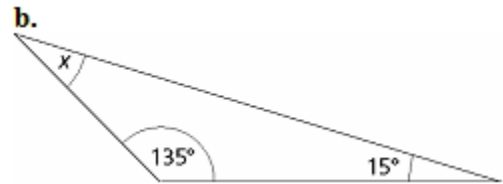
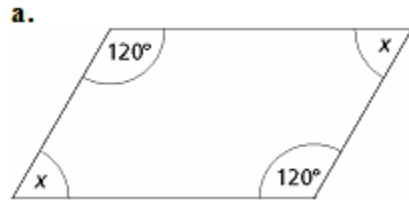


### Final Exam Review Packet (#1-21)

Directions: Do not use a calculator.

1. For each of the shapes below, find the unknown angle measure without using an angle ruler or a protractor.



Solve for x.

2.  $\frac{3}{5}x + 9 = 30$

3.  $-2x + 8 = 32$

4.  $x + 32 = 176$

Perform the following calculations.

5.  $8\frac{5}{6} + 3\frac{3}{8}$

6.  $7\frac{2}{3} - 4\frac{4}{5}$

7.  $-2\frac{2}{9} \times 3\frac{3}{4}$

8. Brice found three recipes for blueberry syrup. Of the ingredients, the ingredients only differed on the amount of blueberries and sugar:

Classic Blueberry syrup: 6 cups blueberries and 2 cups sugar

Homestyle Blueberry syrup: 2 cups blueberries and  $\frac{1}{2}$  cup sugar

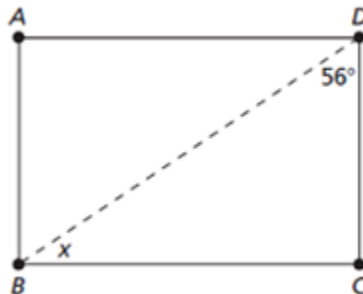
Country Blueberry syrup: 20 cups blueberries and 7 cups sugar

Which recipe will be the sweetest? Explain your reasoning.

9. Expand the expression  $11(2x + 11)$ .

10.  $5 \times 8 + 6 \div 6 - 12 \times 2$       11. What is  $\frac{2}{3}$  of 42?      12. 60% of what is 27?

13. Use rectangle ABCD with diagonal DB. Find the measure of the angle marked  $x$ . Show your work.



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Solve for x.

14.  $\frac{3}{5}x + 7 = 16$

15.  $-(x - 7) = 20$

16.  $x - 7 = 18$

17. Four athletes run a race. The oldest one begins ahead of the starting line. The youngest one begins behind the starting line. The rules that relate distance ( $d$  meters) from the starting line and time ( $t$  seconds) are given.

Carl:  $d = 8t$

Robert:  $d = 6t + 5$

Nelson:  $d = 9t - 5$

Ashley:  $d = 6t$

- a. Which two athletes stay the same distance apart throughout the race?
- b. Which of the above rule(s) represent proportional relationship(s)?
- c. What are the rate and y-intercept for Robert's rule?
- d. What are the rate and y-intercept for Ashley's rule?

18. A scuba diver begins his dive at an elevation of 0 feet. During the dive, his elevation changes at a constant rate of -3 feet per second. How long will it take for him to reach an elevation of -600 feet?

19. Consider the table below.

<b><i>a</i></b>	0	1	2	3
<b><i>r</i></b>	-6	-10	-14	-18

- a. Decide whether the table could describe a linear relationship.
- b. If the relationship is linear, what is the rate?
- c. If the relationship is linear, state whether it is proportional or not.
20. A quadrilateral has two sides of length 6. The sum of the lengths of the other two sides is 15. Use this information to answer the following questions.
- a. Suppose the two sides of length 6 are right next to each other. What might the lengths of the other two sides be? Explain your reasoning.
- b. Suppose the quadrilateral is a rectangle and the two sides of length 6 are opposite each other. What would the other two sides be?
- c. Could the quadrilateral have two sides of length 6, one side of length 13.5, and one side of length 1.5? Explain why or why not.



**Final Exam Review Packet (#22-42)**

Directions: Do not use a calculator.

Perform the following calculations.

$$\begin{array}{r} 22. \quad 7.63 \\ \times 8.5 \\ \hline \end{array}$$

$$23. \quad 18 \overline{)76.14}$$

$$24. \quad 15 \frac{3}{5} - 4 \frac{2}{3}$$

Find the value of x.

$$25. \quad 9x - 3 = 30$$

$$26. \quad 4(x + 3) = 32$$

$$27. \quad 4(2c + 4) = 48$$

Simplify.

$$28. \quad 3(x - 5)$$

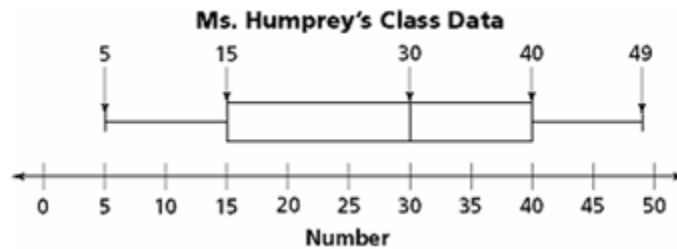
$$29. \quad 2x + 5 + x + 10$$

$$30. \quad -5(2x - 3)$$

$$31. \quad 3x + 2x + 2(x - 1)$$

$$32. \quad \text{Change to a decimal: } \frac{5}{8}$$

33. Ms. Humprey asked each of the 21 students in her mathematics class to choose a number between 1 and 50. Ms. Humprey recorded the data and made this box-and-whisker plot:



- a. What is the median number that was chosen?
  
- b. What percent of students in Ms. Humprey's class chose numbers above 15? Explain your reasoning.
  
- c. About how many students chose numbers between 30 and 40? Explain your reasoning.
  
- d. What were the least and greatest numbers chosen?
  
- e. Is it possible to determine from the box-and-whisker plot whether one of the students chose the number 27? Explain your reasoning.
  
- f. Is it possible to determine from the box-and-whisker plot whether one of the students chose the number 4? Explain your reasoning.

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34. There are 620 students and 31 teachers at the Turner Middle School. There are 950 students and 38 teachers at the Green Middle School. Find the ratios of students to teachers at each school.

35. A square has a perimeter of 16.4 centimeters. What is the length of each side? Explain.

Solve for x.

36.  $\frac{9}{7} = \frac{5}{x}$

37.  $\frac{x}{3} - 4 = 10$

38.  $\frac{11}{13} = \frac{x}{52}$

Perform the following calculations.

39.  $\left| -\frac{3}{5} \right| - \left| \frac{1}{5} \right|$

40.  $1\frac{4}{11} \div \frac{20}{33}$

41.  $-9 - (-3)$

42. 90% of 26 is what?



**Final Exam Review Packet (#43-63)**

Directions: Do not use a calculator.

43. What percent of 45 is 30?
44. What is 30% of 30?
45. A rental car company uses the equation  $C = 30d + 25$  to calculate the cost (C) of renting a car for d days. What is the cost to rent a car for 6 days?
46. Evaluate the following:
- a.  $-3 - (-7)$       b.  $5 \times -4$       c.  $-6 + -8$       d.  $-50 - 50$
- e.  $63 \div -9$       f.  $|5| + |-5|$       g.  $|5 + -5|$       h.  $5 + 16 \div 4 \times 2 - 7$
47. You have 7 fewer than 3 times as many songs on your ipod than your friend does. If your friend has s songs, write an expression that represents the number of songs you have.
48. Which of the following equations represents a proportional relationship?
- a.  $y = \frac{8}{3}x$       c.  $y = \frac{1}{2}x - 2$
- b.  $y = 2x + 3$       d.  $y = -2x - 5$

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49. Last year the Blue Panthers won 38 games and lost 12. Find the ratio of wins to total number of games for the Blue Panthers.

50. Solve and graph the following inequalities:

a.  $5 + 9a < -67$

b.  $35 > -3y + 8$

c.  $2(k + 4) \leq 10$

d.  $\frac{m}{3} - 7 \leq 11$

51. Wang walks at a speed of 6 feet per second, while Lorenzo walks at a speed of 4 feet per second. Suppose you graphed the distance they both walk over time on the same grid. How would the steepness of Lorenzo's line compare to the steepness of Wang's line? Explain.

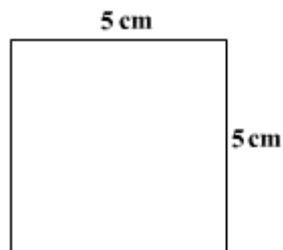
52. Will the result of the following calculation be positive or negative?

$$5403947 - -221212$$

53. In the name Hernandez, find the ratio of number of vowels to the length of the name.

54. Kurt runs a race with his brother, Joey. Joey starts running from the starting line. Kurt starts 8 meters behind the starting line. Kurt runs at a steady rate of 4 meters per second, while Joey runs at a steady rate of 3 meters per second. For each brother, write a rule that relates distance ( $d$  meters) from the starting line and time ( $t$  seconds).

55. Find the area of the square below after it has been scaled by 3.



56. A bag contains 3 red marbles, 2 white marbles, and 4 blue marbles. What is the probability of drawing a red or blue marble from the bag?

Perform the following calculations.

57.  $5\frac{5}{6} \div 1\frac{5}{9}$

58.  $\left| \frac{2}{3} \right| + \left| -\frac{1}{5} \right|$

59.  $\left| -\frac{1}{2} \right| - \left| \frac{1}{3} \right|$

60. Group rates for entrance to a certain amusement park can be calculated with the equation  $C = 25n + 100$ , where  $C$  stands for the cost, and  $n$  stands for the number of people attending. What is the cost if 50 people go to the park?

61. Which table shows a proportional relationship?

Time in Minutes, $t$	0	1	2
Pages Read by Don, $p$	0	2	4

Time in Minutes, $t$	0	1	2
Pages Read by Patrick, $p$	1	3	5

Time in Minutes, $t$	0	1	2
Pages Read by Dominic, $p$	1	5	7

62. Without plotting the point  $(-3, 7)$ , determine in which quadrant it lies.

63. A 6 sided die is rolled and a coin is tossed. Make a list or counting tree of the possible outcomes. What is the probability of rolling a 4 on the die and getting heads on the coin?

**Final Exam Review Packet (#64-84)**

Directions: Do not use a calculator.

64. Which of the following tables shows a linear relationship?

Game 1

Input	0	1	2	3	4
Output	5	10	20	40	80

Game 2

Input	0	1	2	3	4
Output	10	12	16	24	34

Game 3

Input	0	1	2	3	4
Output	0	1	4	9	16

Game 4

Input	0	1	2	3	4
Output	0	3	6	9	12

Solve for x.

65.  $2x + 4 = 22$

66.  $3(x + 2) + (5x + 4) = 6$

67.  $3x = 48$

Perform the following calculations.

68.  $26 - 12 \frac{8}{11}$

69.  $8 \frac{1}{3} \times \frac{9}{35}$

70.  $17 - 56$

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71.  $6.35 + 4.1 + 2.277$

72.  $10.5 - 7.969$

73.  $-4.6 + 2.3$

74. Draw and label a polygon with the following properties.  
 $\angle ABC = 90^\circ$ ,  $\angle BCA = 45^\circ$ , and side  $BC = 1$  in.

**You may use a calculator for the remainder of the problems.**

75. A store sells packages of pencils. Which package offers the best unit price? How did you decide?

a. 11 pencils for \$2.97

b. 14 pencils for \$3.64

c. 12 pencils for \$2.88

d. 15 pencils for \$3.75

76. Solve for  $x$ :  $\frac{x}{6} = \frac{10}{11}$

77. Solve for  $x$ :  $\frac{x}{14} = \frac{3}{8}$

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78. 60% of what is 27?

79. What percent of 64 is 40?

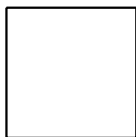
80. 35% of what is 28?

81. 30 is 75% of what number?

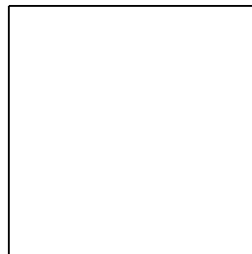
82. Find the interior angle sum of a 12 sided polygon.

83. Charles decides to use the method of proportions and similar triangles to find the height of a lamppost. He measures the length of the post's shadow and finds it is 10 feet long. Then he holds a 12-inch ruler perpendicular to the ground and finds that it casts a 4-inch shadow. How tall is the lamppost?

84. The two squares below are similar. What is the scale factor from the small figure to the large figure?



**Perimeter: 8**



**Perimeter: 20**





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(continued) Find the value of  $x$  that makes the two ratios equivalent.

c. 12 to  $x$  and 4 to 117

d. 12 to  $x$  and 15 to 45

e. 2 to 3 and 7 to  $x$

f. 23 to 115 and  $x$  to 15

89. 25 is 80% of what number?

90. 24 is what percent of 120?

91. What is the measure of one interior angle of a regular octagon?

92. What is the measure of one exterior angle of a regular hexagon?

93. If the ratio of baby rabbits to adult rabbits on a farm is 7:12, how many babies are there if there are 76 rabbits altogether on the farm?