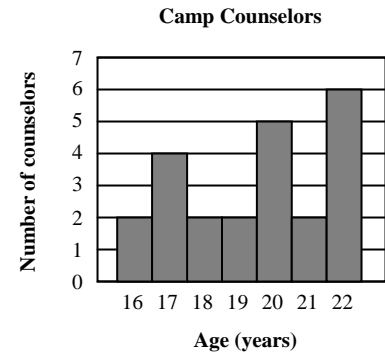


Algebra 1 ~ First Semester Final Exam Review

Non-Calculator

For questions 1 and 2, use the histogram on the right. (1.1)

1. Write an inequality to describe the ages of the counselors.
2. For how many counselors is their age $a > 19$?



For questions 3 – 5, simplify each expression using order of operations. (1.2)

3. $\frac{1}{2} + 3(5 - 9)$
4. $-6 + (-3) \cdot 7 + 4$
5. $4 - (5 - 8) \cdot (-3)$

For questions 6 and 7, evaluate each expression when $x = 3$, $y = -7$, and $z = 4$. (1.2)

6. $\frac{z - y}{5x}$
7. $3(z - x) + 7$

For questions 8 – 13, simplify each expression. (1.4, 1.6 and 1.7)

8. $-8 - |-3|$
9. $|4 - 1| + |3 - 10|$
10. $\frac{4|2 - 5|}{3}$
11. $-(7y + 15)$
12. $3a - 4 + 9a + 6$
13. $-9g - 7k + 3(-g + 5k)$

For questions 14 – 18, solve each equation. Show all your work. (2.1 and 2.2)

14. $n - 15 = 40$
15. $\frac{d}{-9} = -7$
16. $-22 = 4p + 2$
17. $13 - 6t = -17$
18. $\frac{f}{21} + 2 = 0$

For questions 19 and 20, tell whether or not each table below represents a function. (2.3)

19.

x	$2x + 4$
-2	0
-1	2
0	4
1	6

20.

x^2	$\sqrt{x^2}$
0	0
4	2, -2
9	3, -3
16	4, -4

For questions 21 and 22, find the slope of the line through each pair of points. (3.3)

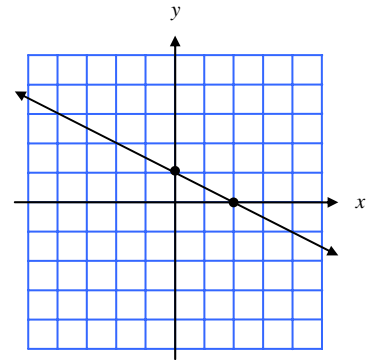
21. (3, -3) and (5, 7)

22. (4, -13) and (-10, 7)

For questions 23 and 24, use the graph on the right. (3.4)

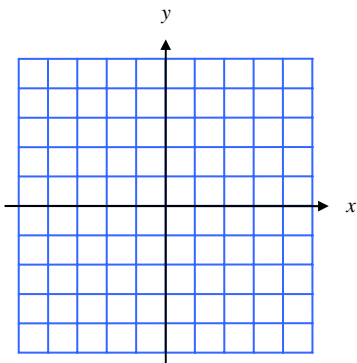
23. Find the slope of the line.

24. Write the equation of the line.

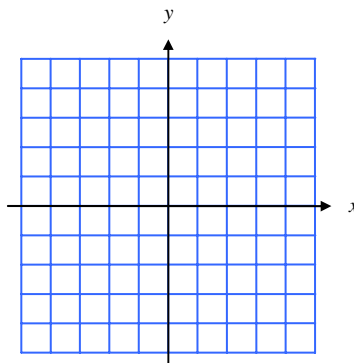


For questions 25 – 29, graph each equation. (2.5 and 3.4)

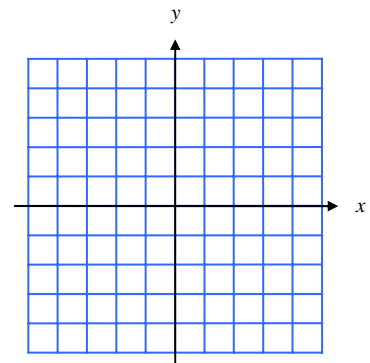
25. $y = 3x$



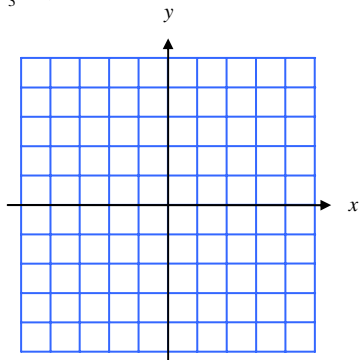
26. $y = -5$



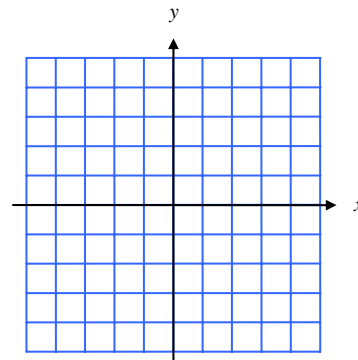
27. $x = -1$



28. $y = -\frac{2}{3}x + 4$



29. $y = \frac{5}{4}x - 2$



For questions 30 – 33, write an equation of a line with the given information. (3.5)

30. slope 5, through $(-2, 1)$

31. slope $\frac{1}{4}$, through $(8, -2)$

32. through $(-2, 3)$ and $(4, 9)$

33. through $(-4, 10)$ and $(-5, 7)$

For questions 34 – 44, solve each equation. Show all your work. (4.2, 4.3 and 4.4)

34. $-24 = -\frac{3t}{8}$

35. $\frac{2}{7}y = -9$

36. $-\frac{3}{2}p + 2 = -13$

37. $-12 = \frac{-5n}{2} + 3$

38. $2(g - 3) = 2g - 6$

39. $-8x + 3 = -11 - x$

40. $\frac{1}{2}(4k + 6) = 3k + 2(9 - 2k)$

41. $7(w - 2) = 3 + 7w$

42. $5h - 2 = 8h - 14$

43. $\frac{r}{4} - \frac{r}{5} = 6$

44. $2 - \frac{2}{3}d = \frac{5}{6}d$

For questions 45 – 47, solve each inequality. Graph the solution on a number line. (4.6)

45. $6 \leq -3d$

46. $-3t + 4 < -8$

47. $32 + 5a > -22$

For questions 48 – 51, solve each proportion. (5.1)

48. $1:4 = m:10$

49. $\frac{12}{6} = \frac{a}{18}$

50. $\frac{3p-2}{4p} = \frac{3}{8}$

51. $\frac{t+3}{6} = \frac{t-1}{2}$

Calculator Allowed

For questions 52 and 53, find the mean, median and mode for each set of data below. (1.3)

52. kilometers hiked each day:
10, 18, 15, 13, 19, 6, 13

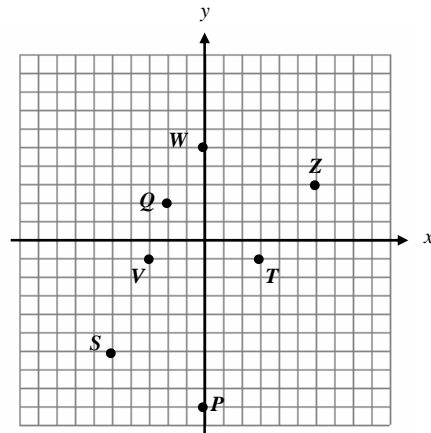
53. number of people in a class:
22, 18, 25, 21, 17, 17, 18, 20

For questions 54 – 56, write the ordered pair for each point using the coordinate graph. (2.4)

54. P

55. Q

56. T



57. Is the point $(-5, 2)$ a solution to the equation $y = 5x + 7$? Show work to verify your answer. (2.5)

58. Is the point $(6, -3)$ a solution to the equation $y = -\frac{1}{3}x - 1$? Show work to verify your answer. (2.5)

For questions 59 and 60, WRITE and SOLVE an equation for each situation. (2.6)

59. Sasha joins a golf club for \$50. She pays an additional \$12 every time she plays. How many times can she play golf if she does not want to spend more than \$250?

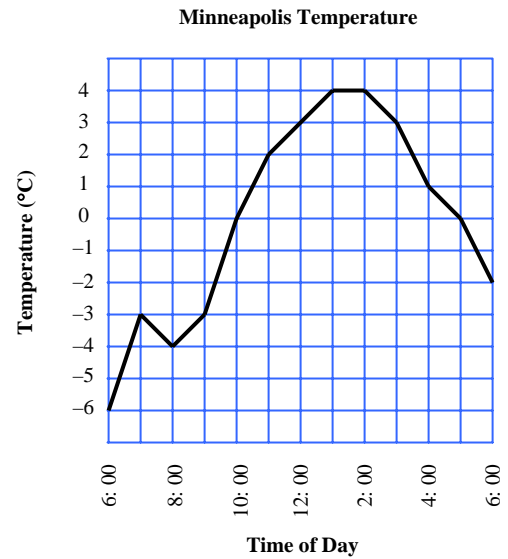
60. Ben buys 21 plants and 3 dollars worth of plant food. If he spends a total of 45 dollars, how much does each plant cost?

For questions 61 – 63, use the graph to the right. (2.6)

61. What was the temperature at 9:00?

62. At what time(s) was the temperature 0°C?

63. What was the lowest temperature?



For questions 64 – 66, convert each rate to a unit rate in the given unit. (3.1)

64. $\frac{1170 \text{ miles}}{3 \text{ hours}} = \underline{\hspace{2cm}}$ miles/min

65. $\frac{123 \text{ km}}{1.5 \text{ hr}} = \underline{\hspace{2cm}}$ m/sec

66. $\frac{15 \text{ m}}{\text{sec}} = \underline{\hspace{2cm}}$ km/hr

For questions 67 and 68, tell whether the data show direct variation. If they do, give the constant of variation and write an equation. (3.2)

67.

Hrs Bicycling	Distance
3	45 km
4	64 km
5	70 km
6	95 km
7	105 km

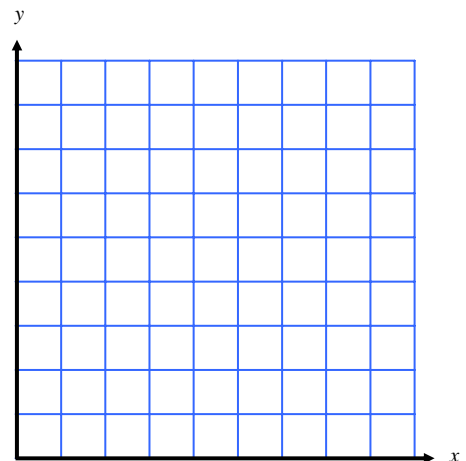
68.

Old Height	New Height
15 cm	31.5 cm
24 cm	50.4 cm
30 cm	63.0 cm
45 cm	94.5 cm
50 cm	105.0 cm

69. Use the following data to complete each part. (3.6)

x	1	2	3	4	5	6	7	8
y	2.25	3	2.25	3	3.5	3.25	4.25	4

- make a scatter-plot.
- draw a line of fit.
- find the equation of your line.



70. Electrician A charges a flat rate of \$75 for a home visit with an additional charge of \$25 per hour worked. Electrician B charges no flat rate but charges \$40 per hour worked. (4.1)

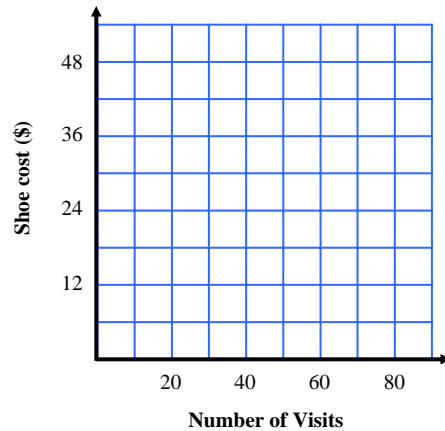
a) Complete the table.

Hours Worked	Electrician A	Electrician B
2		
4		
6		
8		
10		

b) When will the charges be the same for either electrician?

71. You and your friends often go bowling. Renting bowling shoes costs \$0.75 for each visit to the bowling alley. Or, you can buy a pair of bowling shoes for \$41 and pay nothing for each visit. (4.1)

a) Make a graph for the two costs.



b) Use the graph to determine when will it begin to cost more if you rent shoes each time instead of buying them.

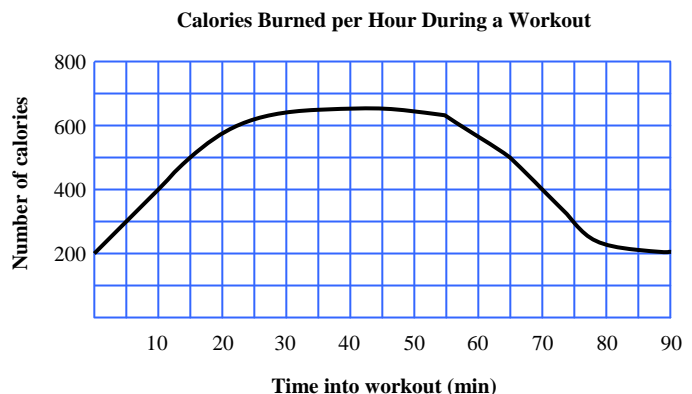
72. Video Club X charges a \$30 membership fee and each video you purchase cost \$7.50. Video Club Y has no membership fee but charges \$10.50 for each video you purchase. Write an equation and solve it to determine how many videos must you buy for the costs to be the same? (4.3)

Equation: _____

For questions 73 and 74, use the graph below which shows the number of calories burned per hour during a workout. Write your answers as inequalities. (4.5)

73. At what time is the person burning at least 400 calories per hour?

74. When is the person burning less than 300 calories per hour?



75. The weight of a carton of books to be shipped must be under 44 lb. If each book weight 0.6 pounds, and the carton weighs 2 pounds, what is the greatest number of books that can go into the carton? Write and solve an inequality to model this situation. (4.6)

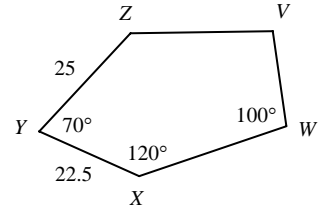
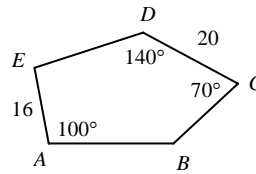
For questions 76 – 79, $ABCDE \sim WXYZV$. Find each side length or angle measure. (5.3)

76. $m\angle B$

77. $m\angle Z$

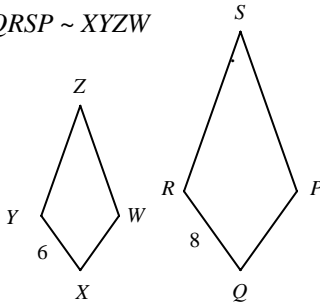
78. VW

79. BC



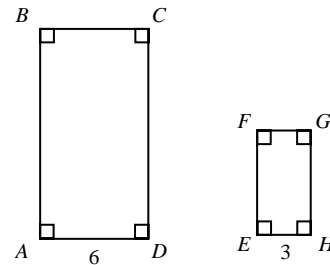
For questions 80 and 81, find the missing values for each pair of similar figures. (5.4)

80. $QRSP \sim XYZW$



$XYZW$	$QRSP$
Perimeter =	Perimeter = 48
Area = 42	Area =

81. $ABCD \sim EFGH$



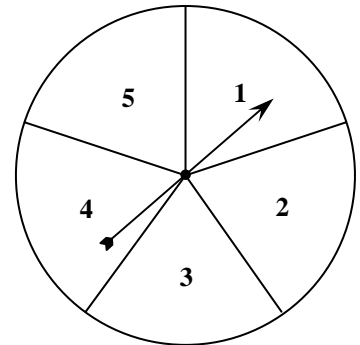
$ABCD$	$EFGH$
Perimeter = 40	Perimeter =
$AB =$	$EF =$
Area =	

For questions 82 – 84, the spinner is shown at the right. (5.5)

82. What is the probability that the spinner will stop on 5?

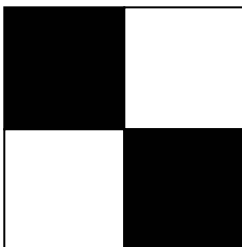
83. What is the probability that the spinner will stop on an even number?

84. Suppose the spinner was spun 60 times and it stopped 14 times on the number 4. Find the experimental probability that the spinner will stop on 4?



For questions 85 and 86, find the probability that a randomly thrown dart will hit the shaded region of each picture. (5.6)

85.



86.

