

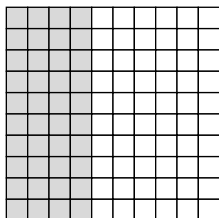
GRADE

**8****Diagnostic Assessment****Number and Quantitative Reasoning**

- Identify the place value of the underlined digit 4,326,547,987.  
**A** millions  
**B** hundred thousands  
**C** ten thousands  
**D** hundreds
- Which is 12.34 million written in standard form?  
**F** 120,340,000  
**G** 12,340,000  
**H** 1,234,000  
**J** 123,400
- Round 217,429 to the nearest ten thousand.  
**A** 220,000                      **C** 216,000  
**B** 217,000                      **D** 210,000
- Which comparison statement is true?  
**F**  $435,890 > 453,765$   
**G**  $889,403 < 881,903$   
**H**  $6,543,784 < 6,435,970$   
**J**  $7,502,512 > 7,501,496$
- Which set of numbers is ordered from least to greatest?  
**A** 6327, 5217, 5117, 742  
**B** 6327, 5117, 5217, 742  
**C** 742, 5117, 5217, 6327  
**D** 742, 5217, 5117, 6327
- Identify the number sets that contain the number 120.  
**F** counting, whole, even  
**G** counting, whole, even, odd  
**H** counting, whole, factor of 7  
**J** counting, odd
- Which list contains the first three multiples of the number 14?  
**A** 14, 15, 16  
**B** 14, 28, 41  
**C** 14, 28, 42  
**D** 1, 14, 28
- Which list contains all the factors of 42?  
**F** 1, 6, 7, 42  
**G** 1, 2, 6, 7, 21, 42  
**H** 1, 2, 3, 6, 7, 14, 21, 42  
**J** 1, 42
- Which number is prime?  
**A** 52                                      **C** 93  
**B** 71                                      **D** 111
- Which number is composite?  
**F** 35                                      **H** 23  
**G** 47                                      **J** 89
- Evaluate  $50^2$ .  
**A** 52                                      **C** 2500  
**B** 100                                      **D** 25,000
- Find the value of  $9^5$ .  
**F** 45                                      **H** 6561  
**G** 95                                      **J** 59,049
- Find the next three numbers in the pattern.  
50,000, 10,000, 2000, 400, ...  
**A** 200, 100, 50  
**B** 80, 16, 3.2  
**C** 50, 25, 15  
**D** 100, 50, 25

**GRADE 8** **Diagnostic Assessment**  
**Number and Quantitative Reasoning, continued**

14. What number is represented by the shaded portion of the grid?



- F  $\frac{2}{5}$                       H  $\frac{40}{50}$   
 G 0.04                      J 1.04

15. Write 4352.67 in word form.

- A four, three, five, two, six, seven  
 B four thousand three hundred two and sixty-seven hundredths  
 C four thousand, three hundred and sixty-seven tenths  
 D four thousand, three hundred fifty-two and sixty-seven hundredths

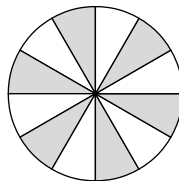
16. Round 656.3463 to the nearest thousandth.

- F 1000                      H 656.346  
 G 656.3                      J 656.4

17. Which set of numbers is ordered from least to greatest?

- A 2.47, 0.7, 0.83, 0.89  
 B 0.7, 0.89, 0.83, 2.47  
 C 0.7, 0.83, 0.89, 2.47  
 D 2.47, 0.89, 0.83, 0.7

18. Write the fraction for the shaded part of the circle.



- F  $\frac{5}{11}$                       H  $\frac{6}{13}$   
 G  $\frac{1}{2}$                       J  $\frac{2}{3}$

19. Simplify  $\frac{32}{24}$ .

- A  $\frac{6}{7}$                       C  $\frac{3}{4}$   
 B  $\frac{2}{3}$                       D  $1\frac{1}{3}$

20. Round  $\frac{14}{15}$  to the nearest benchmark fraction.

- F 0                      H 1  
 G  $\frac{1}{2}$                       J cannot round

21. Which mixed number is equivalent to  $\frac{23}{4}$ ?

- A  $4\frac{1}{8}$                       C  $5\frac{3}{4}$   
 B  $5\frac{1}{2}$                       D  $6\frac{1}{3}$

22. Write  $6\frac{2}{7}$  as an improper fraction.

- F  $\frac{62}{7}$                       H  $\frac{44}{7}$   
 G  $\frac{42}{7}$                       J  $\frac{15}{7}$

**GRADE 8** **Diagnostic Assessment**  
**Number and Quantitative Reasoning, continued**

23. Find a common denominator for

$$\frac{7}{24} + \frac{1}{18}$$

- A** 24                      **C** 48  
**B** 36                      **D** 72

24. Which number should replace the question mark to make the statement true?

$$\frac{7}{8} = \frac{?}{48}$$

- F** 6                          **H** 42  
**G** 14                        **J** 84

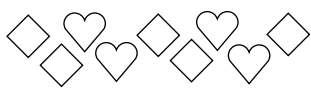
25. Compare.  $4\frac{5}{6}$    $4\frac{7}{8}$

- A** >                        **C** =  
**B** <

26. Which decimal is equivalent to  $\frac{11}{20}$ ?

- F** 0.11                    **H** 0.71  
**G** 0.55                    **J** 1.82

27. What is the ratio of hearts to diamonds?

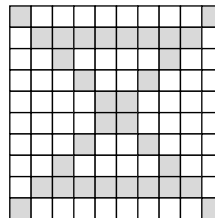


- A** 5:4                      **C** 5:9  
**B** 4:5                      **D** 4:9

28. Simplify: 25 ponies to 15 saddles.

- F** 5:3                      **H** 1:15  
**G** 3:5                      **J** 2:1

29. Determine the percent of shaded squares in the grid below.



- A** 25%                      **C** 50%  
**B** 32%                      **D** 64%

30. Which percent is equivalent to 0.785?

- F** 7.85%                    **H** 785%  
**G** 78.5%                    **J** 0.00785%

31. Write  $\frac{18}{25}$  as a percent.

- A** 18%                      **C** 72%  
**B** 64%                      **D** 138.89%

32. Which comparison statement is true?

- F**  $\frac{3}{4} > 72.5\%$   
**G**  $0.53 < \frac{1}{2}$   
**H**  $62\% = 0.266$   
**J**  $0.875 > 88\%$

33. Which integer represents a \$52 loss?

- A** -\$52  
**B** \$52  
**C** \$0  
**D** -\$520

**GRADE**  
**8** **Diagnostic Assessment**  
**Operations**

34. Find the quotient.  $5\overline{)593}$   
**F** 106                      **H** 118  
**G** 108 r 7                  **J** 118 r 3

35. Find the product.  
 $8 \times 8 \times 8 \times 8 \times 8$   
**A** 40                          **C** 4096  
**B** 3218                      **D** 32,768

36. Multiply.  $12 \times 11$   
**F** 23                          **H** 132  
**G** 24                          **J** 231

37.  $\frac{64}{10,000} = \underline{\quad?}$   
**A** 0.64                      **C** 0.0064  
**B** 0.064                      **D** 0.00064

38. Divide.  $999 \div 9$   
**F** 11                          **H** 111  
**G** 100                        **J** 121

39. Divide  $18\overline{)585}$ . Write any remainder as a decimal.  
**A** 16                          **C** 32  
**B** 26                          **D** 32.5

40. Multiply.  $\begin{array}{r} 12.3 \\ \times 0.06 \\ \hline \end{array}$   
**F** 618                        **H** 7.38  
**G** 738                        **J** 0.738

41. Multiply.  $1000 \times 3.4$   
**A** 34                          **C** 3400  
**B** 340                        **D** 34,000

42. Add.  $\begin{array}{r} \phantom{0}6 \\ 18 \\ + \phantom{0}1 \\ \hline \phantom{0}6 \end{array}$   
**F**  $\frac{3}{2}$                           **H**  $\frac{7}{24}$   
**G**  $\frac{9}{24}$                         **J**  $\frac{1}{2}$

43.  $\frac{9}{11} - \frac{4}{11}$   
**A**  $\frac{5}{11}$                         **C**  $\frac{13}{11}$   
**B**  $\frac{1}{2}$                           **D** 0

44. Multiply  $\frac{3}{4} \times \frac{7}{8}$ . Write the answer in simplest form.  
**F**  $\frac{5}{16}$                         **H**  $\frac{1}{2}$   
**G**  $\frac{7}{8}$                           **J**  $\frac{21}{32}$

45. Multiply.  $\frac{3}{5} \times 105$   
**A** 71                          **C** 175  
**B** 63                          **D** 225

46. What is 15% of 300?  
**F** 20                          **H** 2000  
**G** 45                          **J** 4500

47. Subtract.  $(-15) - (-12)$   
**A** -3                          **C** -27  
**B** 3                            **D** 27

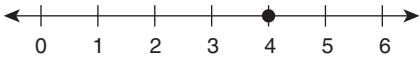
GRADE

**8****Diagnostic Assessment****Algebra**

48. Identify the property shown.  
 $15 \times (8 \times 2) = (15 \times 8) \times 2$   
**F** Commutative Property of Multiplication  
**G** Associative Property of Multiplication  
**H** Multiplication Property of One  
**J** Multiplication Property of Zero
49. Which is the correct use of the Distributive Property to find the product  $7 \times 19$ ?  
**A**  $(7 \times 10) + (7 \times 9)$   
**B**  $7 \times 19$   
**C**  $(7 \times 10) \times (7 \times 9)$   
**D**  $(7 + 10) \times (7 + 9)$
50. Evaluate.  $89 - (15 + 34)$   
**F** 108                      **H** 40  
**G** 49                         **J** 29
51.  $\frac{(35 - 3)}{4} + 6^2$   
**A** 20                         **C** 35  
**B** 41                         **D** 44
52. Simplify.  $\frac{1}{2}(6 + 7)(4)$   
**F** 8.5                        **H** 31  
**G** 26                         **J** 40
53. Which expression represents 32 less than  $w$ ?  
**A**  $w - 32$   
**B**  $32w$   
**C**  $32 - w$   
**D**  $32 \div w$
54. Evaluate the expression  $\frac{3}{4}xy + 8$  for  $x = 4$  and  $y = 3$ .  
**F** 17                         **H** 72  
**G** 44                         **J** 122.33
55. Simplify.  $10y - 5x + 7 - 3x + 9$   
**A**  $10y - 8x + 16$   
**B**  $10y - 2x + 16$   
**C**  $10y + 2x + 16$   
**D**  $10y - 8x + 2$
56. Which algebraic equation matches the expression “a number divided by 8 is  $\frac{3}{5}$ ”?  
**F**  $\frac{8}{n} = \frac{3}{5}$                       **H**  $8n = \frac{3}{5}$   
**G**  $\frac{n}{8} = \frac{3}{5}$                       **J**  $8 + n = \frac{3}{5}$
57. Use inverse operations to solve the equation  $n + 124 = 436$ .  
**A**  $n = 3.5$                       **C**  $n = 560$   
**B**  $n = 312$                       **D**  $n = 54,064$
58. Solve.  $56 - n = 88$   
**F**  $n = -32$                       **H**  $n = 1.57$   
**G**  $n = 32$                         **J**  $n = -34$
59. Solve.  $0.06t = 4.8$   
**A**  $t = 0.288$                       **C**  $t = 16$   
**B**  $t = 2.88$                       **D**  $t = 80$
60. Solve.  $\frac{w}{6} + 15 = 52$   
**F**  $w = 6.17$                       **H**  $w = 222$   
**G**  $w = 184$                       **J**  $w = 402$

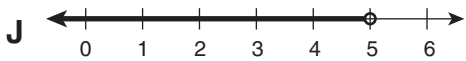
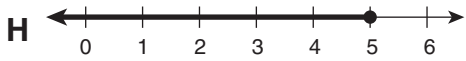
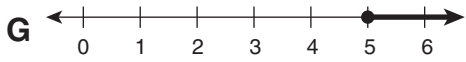
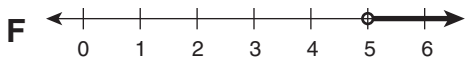
**GRADE 8** **Diagnostic Assessment**  
**Algebra, continued**

61. Identify the point graphed on the number line.

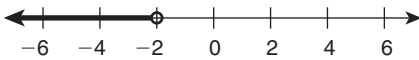


- A -4                      C 4  
B 3                         D 5

62. Which graph is the solution to the inequality  $4x < 20$ ?

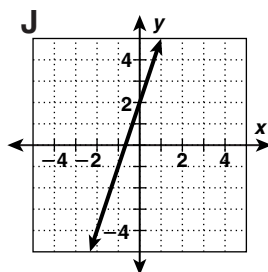
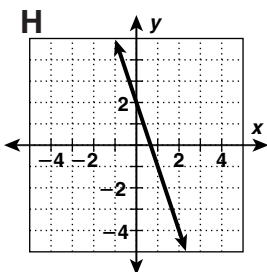
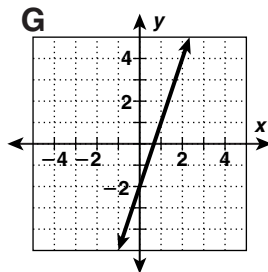
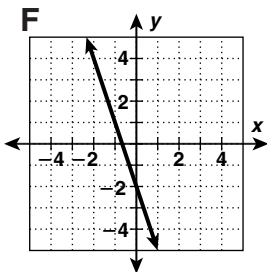


63. Which inequality represents the graph?



- A  $x > -2$                 C  $x < -2$   
B  $x \geq -2$                 D  $x \leq -2$

64. Which graph corresponds to the equation  $y = 3x - 2$ ?



65. Solve.  $\frac{8}{w} = \frac{18}{72}$

- A  $w = 2$                     C  $w = 4$   
B  $w = 32$                  D  $w = 64$

66. 85 cm = \_\_\_\_\_ mm

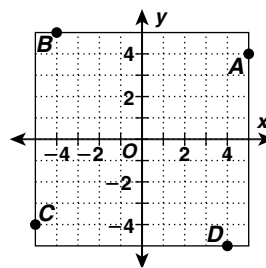
- F 850                         H 85,000  
G 8500                      J 8.5

67. Complete the function table.

Input	Algebraic Expression	Output
$n$	$n - 3.2$	
8.4		5.2
11.7		8.5
15.2		??

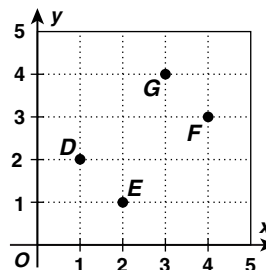
- A 12                         C 14.1  
B 13.2                      D 18.4

68. What is the ordered pair for point C?



- F (5, 4)  
G (-4, 5)  
H (-5, -4)  
J (4, -5)

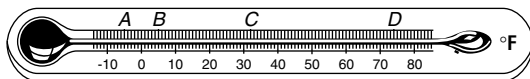
69. What is the ordered pair for point E?



- A (1, 2)  
B (2, 1)  
C (4, 3)  
D (3, 4)

**GRADE 8** **Diagnostic Assessment**  
**Measuring**

70. What temperature is shown by the letter A?



- F 32°                      H 74°  
G 5°                         J -5°

71. Change to the given unit.

34 c = \_\_\_\_\_ pt

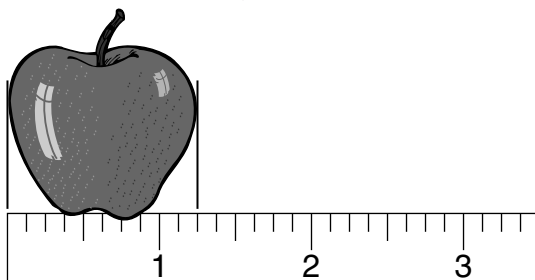
- A 17                         C 48  
B 36                         D 68

72. Change to the given unit.

64,000 mL = \_\_\_\_\_ L

- F 6.4                         H 640  
G 64                         J 6400

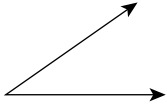
73. Which is the length of the apple?



- A 1 inch                    C  $1\frac{1}{8}$  inches  
B  $1\frac{1}{4}$  inches             D  $1\frac{1}{2}$  inches

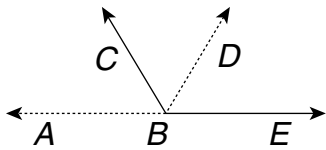
**GRADE 8** **Diagnostic Assessment**  
**Geometry**

74. Classify the angle shown.



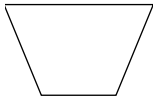
- F right                      H obtuse  
G acute                      J straight

75. Name the angle formed by the dashed rays.



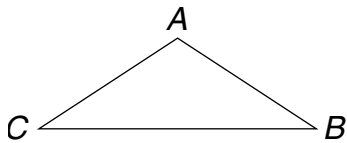
- A  $\angle ABC$                       C  $\angle DBE$   
B  $\angle ABD$                       D  $\angle EBC$

76. Identify the figure.



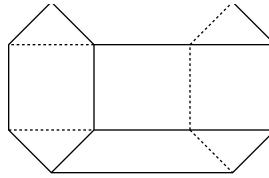
- F trapezoid                      H rhombus  
G rectangle                      J square

77. Which is the name of the obtuse angle in the polygon?



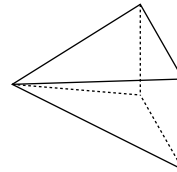
- A  $\angle ABC$                       C  $\angle BCA$   
B  $\angle CAB$                       D  $\angle CBA$

78. Identify the solid figure.



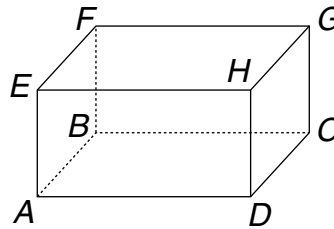
- F hexagonal prism  
G hexagonal pyramid  
H cone  
J pentagonal prism

79. Identify the number of faces, edges and vertices.



- A faces = 4, edges = 12, vertices = 8  
B faces = 5, edges = 8, vertices = 5  
C faces = 4, edges = 8, vertices = 5  
D faces = 5, edges = 12, vertices = 8

80. Which sets of lines are parallel to  $\overleftrightarrow{AB}$ ?

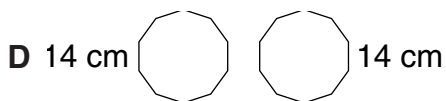
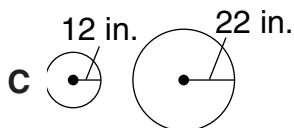
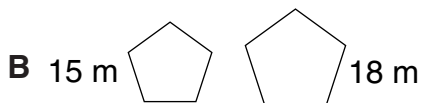


- F  $\overleftrightarrow{AD}$  and  $\overleftrightarrow{BC}$                       G  $\overleftrightarrow{AD}$  and  $\overleftrightarrow{CD}$   
H  $\overleftrightarrow{GH}$  and  $\overleftrightarrow{BC}$                       J  $\overleftrightarrow{EF}$  and  $\overleftrightarrow{CD}$

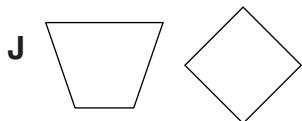
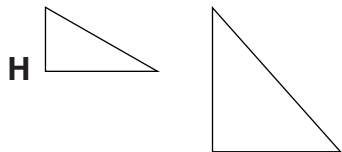
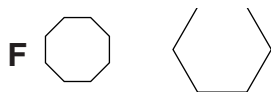


**GRADE 8 Diagnostic Assessment**  
**8 Geometry, continued**

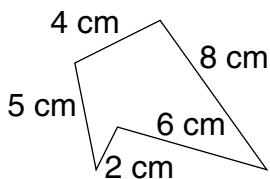
81. Identify the set of figures that are congruent.



82. Identify the pair of figures that appear to be similar.

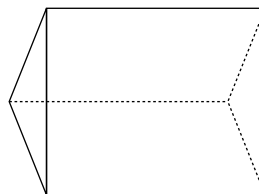


83. Find the perimeter of the figure.



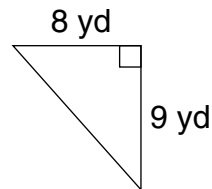
- A 25 cm                      C 20 cm  
 B 21 cm                      D 19 cm

84. Identify the figure shown.



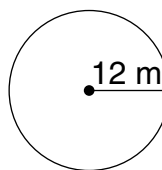
- F triangular prism  
 G triangular pyramid  
 H rectangular prism  
 J rectangular pyramid

85. Find the area of the figure.



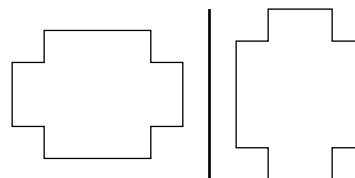
- A  $72 \text{ yd}^2$                       C  $22 \text{ yd}^2$   
 B  $36 \text{ yd}^2$                       D  $17 \text{ yd}^2$

86. Find the area of the figure. Use 3.14 for  $\pi$ .



- F  $452.16 \text{ m}^2$                       H  $75.36 \text{ m}^2$   
 G  $113.04 \text{ m}^2$                       J  $37.68 \text{ m}^2$

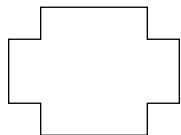
87. Identify the transformation.



- A translation                      C reflection  
 B rotation                      D transdermal

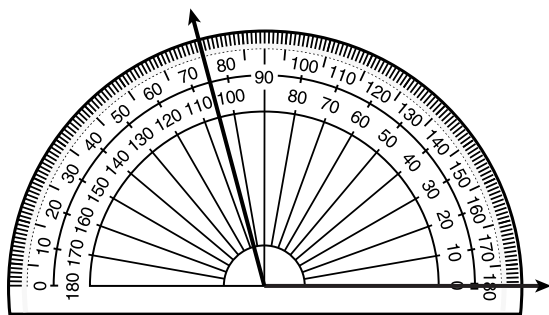
**GRADE 8** **Diagnostic Assessment**  
**Geometry, continued**

88. Identify the number of lines of symmetry in the figure.



- F 0                      H 2
- G 1                      J 3

89. What is the measure of the angle?



- A 75°                    C 105°
- B 85°                    D 110°

**GRADE 8** **Diagnostic Assessment**  
**Statistics and Data Analysis**

90. Use the data in the table to answer the question.

Employee	Hours	Pay Rate	Total
J. Burns	45	\$6.50	\$292.50
M. Gwin	45	\$9.25	\$416.25
N. Rice	35	\$8.75	\$306.25
C. Walter	44	\$9.15	\$402.60

Which employee had the greatest total earnings?

- F** J. Burns                      **H** N. Rice  
**G** M. Gwin                      **J** C. Walter

91. What is the range of the data set?  
106, 115, 79, 94, 78, 103, 90

- A** 95                                  **C** 37  
**B** 78                                  **D** 16

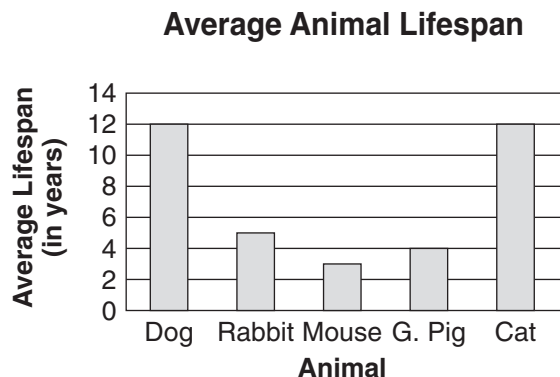
92. What is the median of the data set?  
5.8, 4.6, 5.4, 4.6, 4.8, 5.0

- F** 5.4                                  **H** 4.9  
**G** 5.0                                  **J** 4.8

93. What is the mean of the data set?  
103, 88, 107, 94, 108

- A** 108                                  **C** 100  
**B** 107                                  **D** 93

94. Use the bar graph to answer the question.

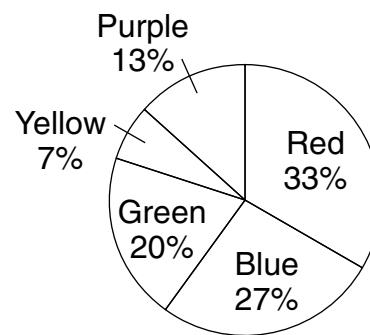


What is the average lifespan of a rabbit?

- F** 3 years                                  **H** 5 years  
**G** 4 years                                  **J** 12 years

95. Use the circle graph to answer the question.

**8th Graders' Favorite Colors**



What is the favorite color of 8<sup>th</sup> graders?

- A** blue                                  **C** red  
**B** green                                  **D** purple

**GRADE**  
**8**

**Diagnostic Assessment**  
**Statistics and Data Analysis, continued**

96. Use the stem-and-leaf plot to answer the question.

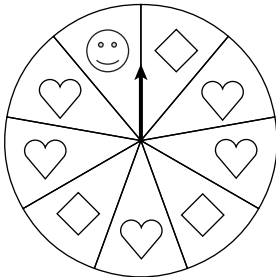
**Test Scores**

Stem	Leaves
5	0 1 3 5
6	1 1 2 2
7	0 4 5 8 9 9
8	1 3 5 7 7

What is the median of the test scores?

- F** 75                      **H** 70.16  
**G** 74                      **J** 37

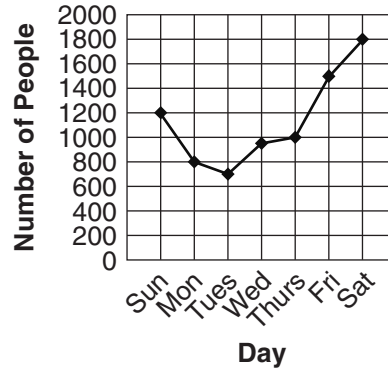
97. What is the likelihood of spinning a smiley face?



- A** certain                      **C** likely  
**B** impossible                **D** unlikely

98. Use the graph to answer the question.

**Attendance at Water Park**



How much greater was the attendance on Saturday than on Monday?

- F** 800                      **H** 1800  
**G** 1000                 **J** 2600