

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

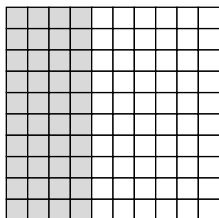
GRADE

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

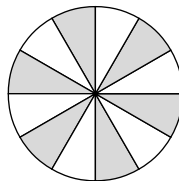
G 656.3

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 $\frac{15}{7}$

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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. 12×11
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. 1000×3.4
A 34 **C** 3400
B 340 **D** 34,000

42. Add. $\begin{array}{r} 6 \\ 18 \\ + 1 \\ \hline 9 \\ 6 \end{array}$
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

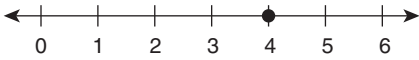
GRADE

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 7×19 ?
A $(7 \times 10) + (7 \times 9)$
B 7×19
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** $w = 402$

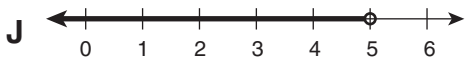
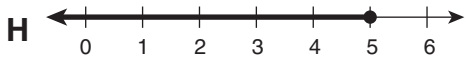
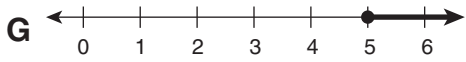
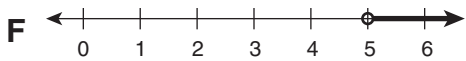
GRADE 8 **Diagnostic Assessment**
Algebra, continued

61. Identify the point graphed on the number line.

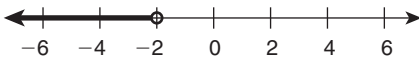


- A -4 C 4
B 3 D 5

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

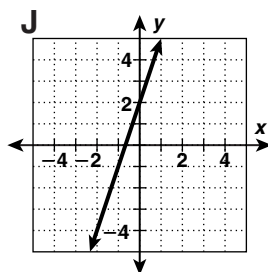
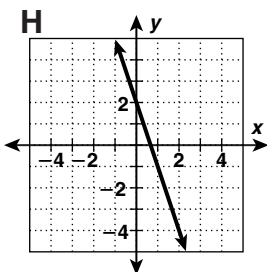
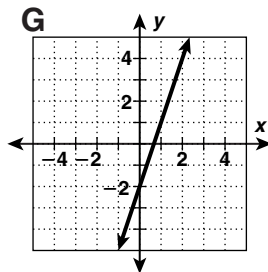
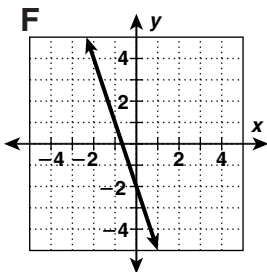


63. Which inequality represents the graph?



- 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

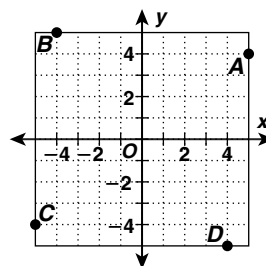
- F 850 H 85,000
G 8500 J 8.5

67. Complete the function table.

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

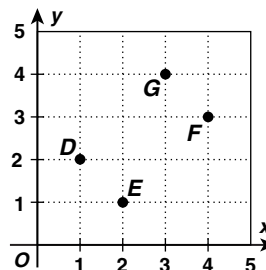
- A 12 C 14.1
B 13.2 D 18.4

68. What is the ordered pair for point C?



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

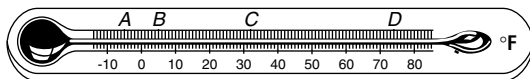
69. What is the ordered pair for point E?



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

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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

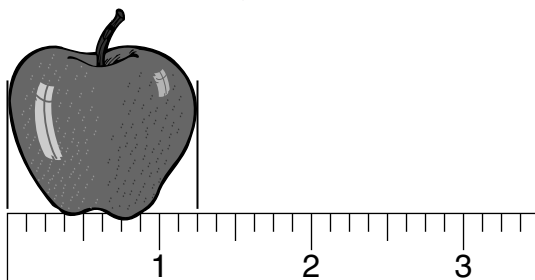
- A 17 C 48
B 36 D 68

72. Change to the given unit.

64,000 mL = _____ L

- F 6.4 H 640
G 64 J 6400

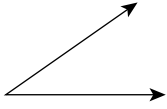
73. Which is the length of the apple?



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

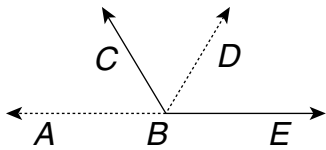
GRADE 8 **Diagnostic Assessment**
Geometry

74. Classify the angle shown.



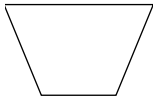
- F right H obtuse
G acute J straight

75. Name the angle formed by the dashed rays.



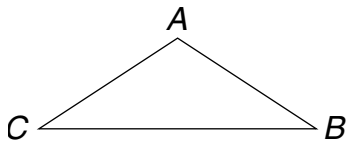
- A $\angle ABC$ C $\angle DBE$
B $\angle ABD$ D $\angle EBC$

76. Identify the figure.



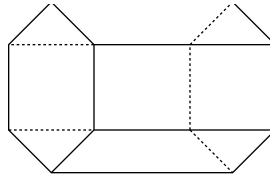
- F trapezoid H rhombus
G rectangle J square

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



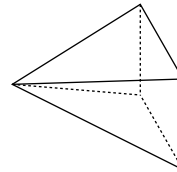
- A $\angle ABC$ C $\angle BCA$
B $\angle CAB$ D $\angle CBA$

78. Identify the solid figure.



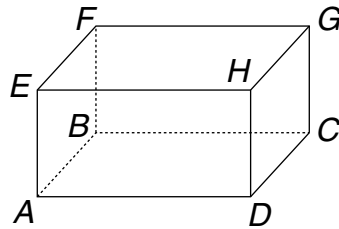
- F hexagonal prism
G hexagonal pyramid
H cone
J pentagonal prism

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

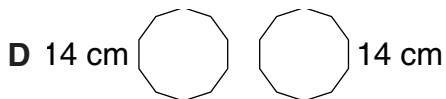
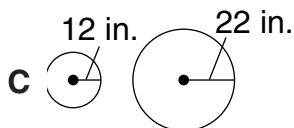
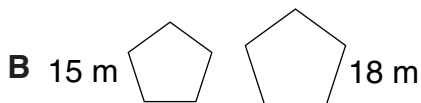
80. Which sets of lines are parallel to \overleftrightarrow{AB} ?



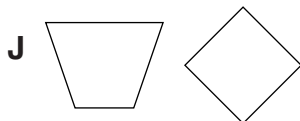
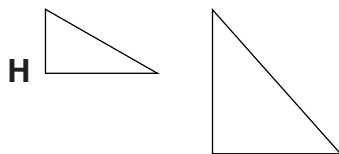
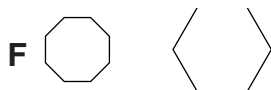
- F \overleftrightarrow{AD} and \overleftrightarrow{BC} G \overleftrightarrow{AD} and \overleftrightarrow{CD}
H \overleftrightarrow{GH} and \overleftrightarrow{BC} J \overleftrightarrow{EF} and \overleftrightarrow{CD}

GRADE 8 Diagnostic Assessment
8 Geometry, continued

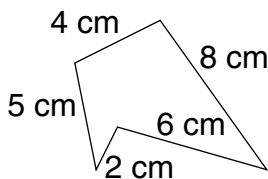
81. Identify the set of figures that are congruent.



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

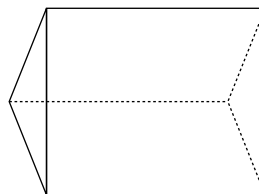


83. Find the perimeter of the figure.



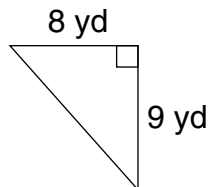
- A 25 cm C 20 cm
 B 21 cm D 19 cm

84. Identify the figure shown.



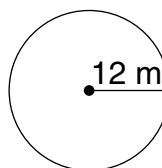
- F triangular prism
 G triangular pyramid
 H rectangular prism
 J rectangular pyramid

85. Find the area of the figure.



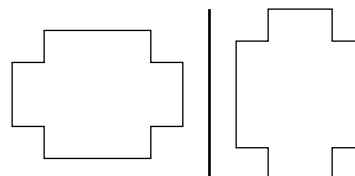
- A 72 yd^2 C 22 yd^2
 B 36 yd^2 D 17 yd^2

86. Find the area of the figure. Use 3.14 for π .



- F 452.16 m^2 H 75.36 m^2
 G 113.04 m^2 J 37.68 m^2

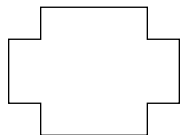
87. Identify the transformation.



- A translation C reflection
 B rotation D transdermal

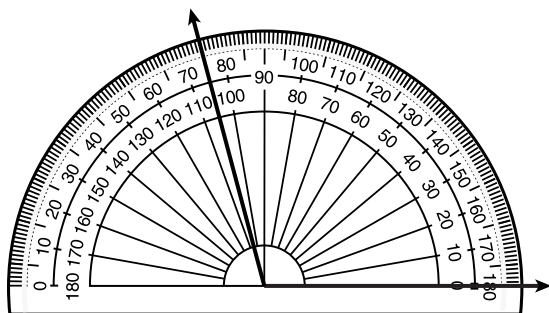
GRADE 8 **Diagnostic Assessment**
Geometry, continued

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

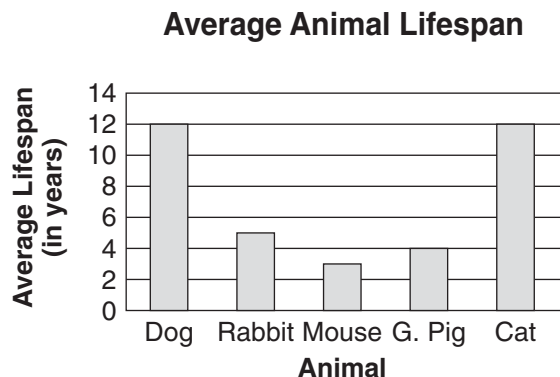
92. What is the median of the data set?
5.8, 4.6, 5.4, 4.6, 4.8, 5.0

- 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.

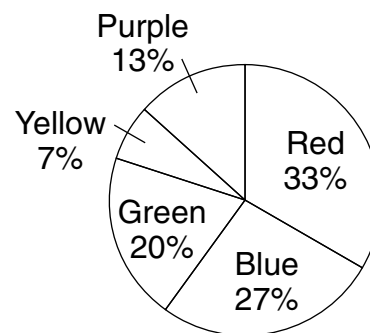


What is the average lifespan of a rabbit?

- 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 8th graders?

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

GRADE 8 Diagnostic Assessment
8 Statistics and Data Analysis, continued

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

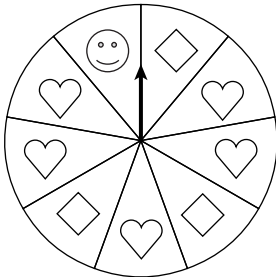
Test Scores

| 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

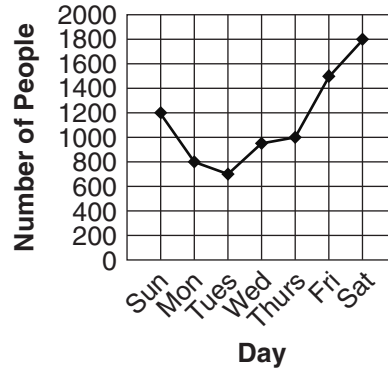
97. What is the likelihood of spinning a smiley face?



- 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