TEST NAME: **8th Grade NS.1**
TEST ID: **775827**
GRADE: **08 - Eighth Grade**
SUBJECT: **Mathematics**
TEST CATEGORY: **School Assessment**

Student: _____

Class: _____

Date: _____

1. Which fraction is equivalent to $0.\overline{7}$?

   A. $\frac{7}{9}$

   B. $\frac{77}{100}$

   C. $\frac{7}{11}$

   D. $\frac{1}{7}$

2. **Which number is irrational?**

   A. $-\sqrt{81}$

   B. $\frac{\sqrt{4}}{10}$

   C. $\sqrt{36}$

   D. $\sqrt{8}$

3. Which fraction is equivalent to $0.1\overline{66}$?

   A. $\frac{16}{100}$

   B. $\frac{16}{99}$

   C. $\frac{1}{6}$

4. Which number is an irrational number?

A. $\sqrt{2}$

B. $\frac{24}{37}$

C. $\sqrt{225}$

D. $\frac{125}{100}$

5. To which set(s) of numbers does 0.0202002000200002. . . belong?

A. irrational only

B. rational only

C. rational and natural

D. rational and integer

6. What is true about the number $\frac{7}{12}$?

A. It is an irrational number.

B. It has no decimal expansion.

C. The decimal equivalent will eventually repeat.

D. The decimal equivalent is a terminating number.

7. Which set contains all irrational numbers?

A. $\sqrt{3}, \pi, 4\sqrt{5}$

B. $\frac{5}{9}, \sqrt{3}, 0.\overline{3}$

C. $0, \frac{3}{4}, 1.914$

D. $\sqrt{\frac{1}{2}}, 2\sqrt{5}, \sqrt{25}$

8. Which number is an irrational number?

A. $0.2\overline{5}$

B. $\frac{1}{3}$

C. $\sqrt{0.64}$

D. $\sqrt{18}$

9. Which set of numbers contains only whole numbers?

A. {¯3, ¯2, ¯1}

B. {0, 2, 4}

C. {1.5, 2.5, 3.5}

10. Which fraction is equivalent to $0.\overline{54}$?

A. $\frac{5}{9}$

B. $\frac{6}{11}$

C. $\frac{27}{50}$

D. $\frac{26}{48}$

11. Which rational number is equivalent to $0.\overline{36}$?

A. $\frac{4}{9}$

B. $\frac{11}{30}$

C. $\frac{4}{11}$

D. $\frac{9}{25}$

12. **Which set contains an irrational number?**

A. $\{0, 1, 2, 3, -1\}$

B. $\{0.17, \sqrt{3}, 2.\bar{5}, \sqrt{4}\}$

C. $\left\{\frac{1}{2}, \frac{3}{5}, \frac{15}{3}, -\frac{7}{2}, 1\frac{5}{6}\right\}$

D. $\{\sqrt{100}, 0.125125125, -1.0888\}$

13. **What value for *x*, when used in this expression, results in an irrational number?**

$\sqrt{-x+20}$

A. -16

B. -5

C. 11

D. 9

14. Which set of numbers contains only natural numbers?

A. $\{-1, 0, 1\}$

B. $\{0, 1, 2\}$

C. $\{1, 2, 3\}$

15. **The areas of 4 different squares are listed below. Which area represents a square with a side length that is a rational number?**

A. 24 square feet

B. 36 square feet

C. 48 square feet

D. 72 square feet

16. **Which of the following numbers is irrational?**

A. $\frac{1}{2}$

B. $\sqrt{81}$

C. $\frac{3}{8}$

D. $\sqrt{15}$

17. Which number is equivalent to $2.\overline{42}$?

A. $\frac{1}{21}$

B. $2\frac{21}{50}$

C. $2\frac{19}{45}$

D. $2\frac{14}{33}$

18. Which statement is true about the decimal expansion for $\frac{6}{11}$?

A. The decimal expansion terminates after 1 decimal place.

B. The decimal expansion is non-terminating and non-repeating.

C. The decimal expansion begins repeating after 2 decimal places.

D. The decimal expansion begins repeating after 3 decimal places.

19. **Which of the following numbers is irrational?**

A. -6

B. -0.45

C. $\frac{2}{3}$

D. $\sqrt{10}$

20. Which fraction is equivalent to $3.\overline{33}$?

A. $\frac{10}{3}$

B. $\frac{36}{11}$

C. $\frac{333}{100}$

D. $\frac{91}{30}$

21. Which is an irrational number?

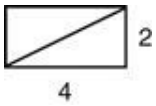
A. $\sqrt{49}$

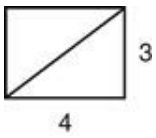
B. 5.6

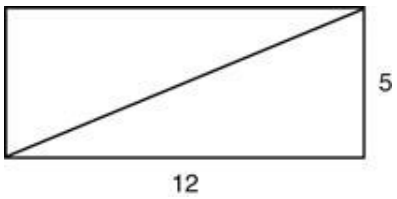
C. $\frac{\sqrt{10}}{2}$

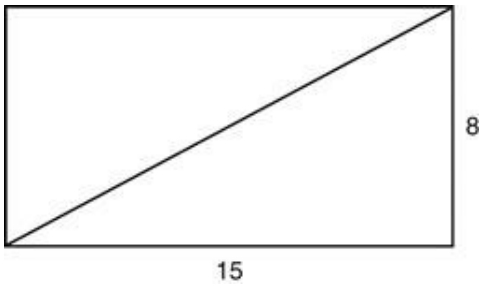
D. $\frac{4}{5}$

22. **Which rectangle has a diagonal length that is an irrational number?**

A. 

B. 

C. 

D. 

23. Which set of numbers contains only integers?

A. $\left\{-\frac{1}{4}, 0, -2\right\}$

B. $\left\{\sqrt{7}, \frac{1}{3}, -\frac{2}{5}\right\}$

C. $\{-3, 0, 2\}$

24. Which number below is an example of a natural number?

A. -2

B. $\frac{2}{5}$

C. 3

D. 4.5

25. **Which number in the list is an irrational number?**

$\frac{9}{4}, -13^3, \sqrt{15}, 1.52$

A. 1.52
B. -13^3
C. $\frac{9}{4}$
D. $\sqrt{15}$

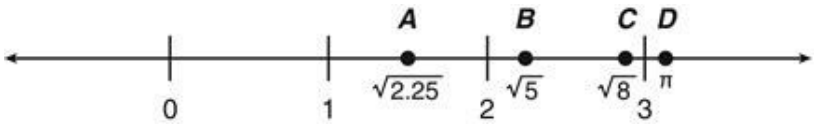
26. Which set of numbers below contains only natural numbers?

A. 0, 1, 8, 12
B. 4, 9, 18, 25
C. -2, 5, 7, 15
D. $\sqrt{4}, \sqrt{9}, \sqrt{12}, \sqrt{16}$

27. **Which number is irrational?**

A. 0.656656665. . .
B. $0.\overline{78}$
C. 2.35
D. $\frac{22}{7}$

28. **Which point on the number line represents a rational number?**



A. Point *A*
B. Point *B*
C. Point *C*
D. Point *D*

29. **Aaron found the length of the diagonal of a rectangle to be an irrational number. Which could be the length of the diagonal?**

A. $\sqrt{61}$
B. $17\frac{1}{3}$
C. 19.7
D. $\sqrt{441}$

30. Which choice is an example of an irrational number?

A. $\frac{16}{7}$

B. $2.\overline{5}$

C. $\sqrt[3]{24}$

D. $\sqrt{49}$

31. Which is an irrational number?

A. $\sqrt{\frac{1}{9}}$

B. $\sqrt{\frac{2}{9}}$

C. $\sqrt{\frac{4}{9}}$

32. Which fraction is equivalent to $1.\overline{2}$?

A. $\frac{13}{11}$

B. $\frac{12}{11}$

C. $\frac{12}{10}$

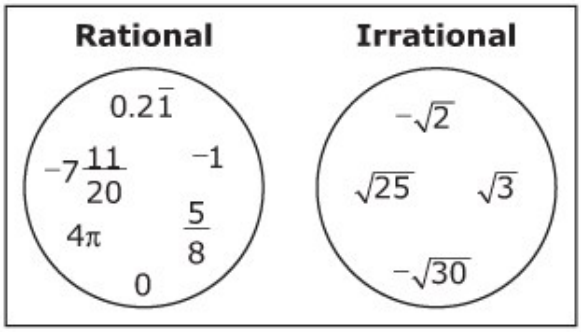
D. $\frac{11}{9}$

33. A student placed the ten numbers shown into a Venn diagram.

$\sqrt{25}$	$0.2\overline{1}$	4π	-1	$\sqrt{3}$
$-7\frac{11}{20}$	$-\sqrt{2}$	0	$-\sqrt{30}$	$\frac{5}{8}$

Which Venn diagram shows the correct relationships for the numbers?

A.



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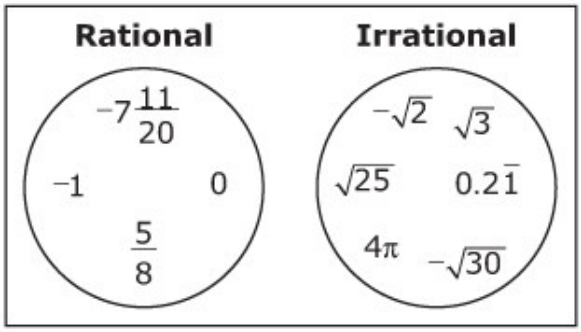

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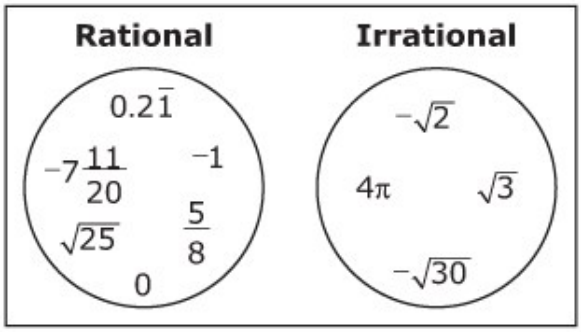
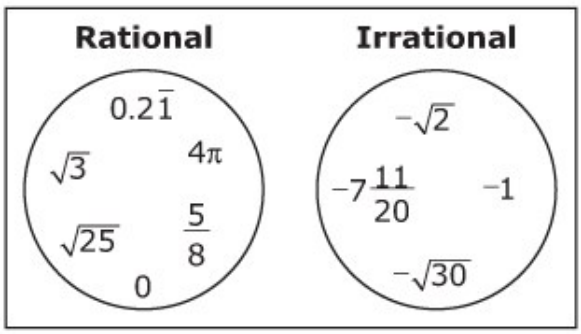


D.



34. Which number is an irrational number?

A. $\frac{3}{7}$

B. 5.03

C. $\sqrt{8}$

D. $\sqrt{25}$

35. Which number is an example of a rational number?

A. $1.\overline{23}$

B. π

C. $\sqrt{10}$

D. $\sqrt{18}$

36. Which choice is an irrational number?

A. $\frac{1}{3}$

B. $0.\overline{11}$

C. $\sqrt{6}$

D. $-\sqrt{9}$

37. Which is a whole number?

A. -2

B. 0

C. 2.5

38. **Which phrase does not describe a rational number?**

A. integer number
B. repeating decimal
C. terminating decimal
D. non-repeating, non-terminating decimal

39. **Which number is irrational?**

A. $-\sqrt{64}$
B. $-\sqrt{6}$
C. $\frac{1}{3}$
D. $\frac{4}{5}$

40. Which number below is an example of a whole number?

A. -2
B. $\sqrt{6}$
C. 5.7
D. $\frac{32}{4}$

41. Which number is an integer?

A. $-\frac{1}{2}$
B. $\sqrt{\frac{4}{9}}$
C. -0.5
D. $\sqrt{64}$

42. Which fraction is equivalent to $0.1\overline{3}$?

A. $\frac{13}{100}$

B. $\frac{33}{250}$

C. $\frac{2}{15}$

D. $\frac{1}{3}$

43. Which set of numbers are all whole numbers?

A. $\{^{-}2, 0, 2\}$

B. $\{0, 2, 4\}$

C. $\{2, 3.5, 4\}$

D. $\{\sqrt{4}, \sqrt{8}, \sqrt{36}\}$

44. Which set of numbers contains only natural numbers?

A. $\{^{-}2, ^{-}1, 0, 1, 2\}$

B. $\left\{0, \frac{1}{2}, 1, 1\frac{1}{2}\right\}$

C. $\{1, 2, 3, 4\}$

D. $\{\sqrt{1}, \sqrt{2}, \sqrt{3}, \sqrt{4}\}$

45. **Which of the following numbers is rational?**

A. 0.31311 . . .

B. $\sqrt{5}$

C. $\sqrt{16}$

D. $\sqrt{27}$

46. Which list shows the fractions shown below, in order from least to greatest?

$\frac{21}{495}, \frac{220}{4909}, \frac{19}{441}$

A. $\frac{19}{441}, \frac{21}{495}, \frac{220}{4909}$

B. $\frac{21}{495}, \frac{19}{441}, \frac{220}{4909}$

C. $\frac{21}{495}, \frac{220}{4909}, \frac{19}{441}$

D. $\frac{220}{4909}, \frac{21}{495}, \frac{19}{441}$

47. **A computer programmer knew there was an error in his formula because the output was an irrational number. Which number below could have been the output?**

A. 75.345345345345345 . . .

B. 86.98765876576546543 . . .

C. 76.00000000000000008

D. 0000000.000000000000

48. Which set of numbers only contains rational numbers?

A. $\left\{\frac{1}{2}, \frac{2}{3}, \sqrt{3}\right\}$

B. $\{0, 4, \sqrt{9}\}$

C. $\{5, \sqrt{6}, 7\}$

49. **Which fraction is equivalent to** $0.\overline{142857}$?

A. $\frac{1}{7}$

B. $\frac{1}{9}$

C. $\frac{1}{11}$

D. $\frac{1}{14}$

50. Which equation has an irrational solution?

A. $x^2 = 2$

B. $x^2 = 81$

C. $x^3 = 27$

D. $x^3 = 64$

51. Which is a rational number?

A. $\sqrt{9}$

B. $\sqrt{10}$

C. $\sqrt{12}$

52. **What is $0.\overline{45}$ expressed as a fraction in lowest terms?**

A. $\frac{9}{200}$

B. $\frac{9}{20}$

C. $\frac{5}{11}$

D. $\frac{5}{9}$

53. Which fraction is equivalent to $0.58\overline{3}$?

A. $\frac{29}{50}$

B. $\frac{7}{12}$

C. $\frac{73}{125}$

D. $\frac{5}{8}$

54. Which number is a rational number?

A. $\sqrt{0.4}$

B. $\sqrt{\frac{5}{9}}$

C. $\sqrt{\frac{1}{4}}$

D. $\sqrt{0.05}$

55. Which number is equivalent to the repeating decimal 0.242242242...?

A. $\frac{24}{100}$

B. $\frac{242}{999}$

C. $\frac{242}{1000}$

D. $\frac{2422}{9999}$

56. **Which fraction is equivalent to** $0.\overline{4}$?

A. $\frac{4}{7}$

B. $\frac{4}{9}$

C. $\frac{4}{10}$

D. $\frac{4}{11}$

57. In which set(s) of numbers does the real number 0 belong?

A. irrational only

B. rational, whole, and natural

C. rational, integer, and natural

D. rational, integer, and whole

58. Which fraction is equivalent to $0.0\overline{18}$?

A. $\frac{1}{55}$

B. $\frac{2}{111}$

C. $\frac{9}{500}$

D. $\frac{17}{900}$

59. Which fraction is equivalent to $0.\overline{63}$?

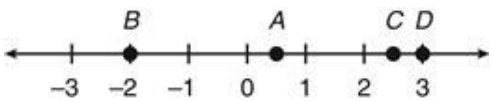
A. $\frac{19}{300}$

B. $\frac{7}{110}$

C. $\frac{9}{13}$

D. $\frac{7}{11}$

60. **Glen labeled points *A*, *B*, *C*, and *D* on this number line.**



Which term describes all four of these labeled numbers?

A. irrational numbers

B. rational numbers

C. mixed numbers

D. integers

61. **Which fraction is equivalent to a repeating decimal?**

A. $\frac{1}{10}$

B. $\frac{1}{15}$

C. $\frac{1}{16}$

D. $\frac{1}{20}$

62. Which fraction is equivalent to the decimal $0.\overline{45}$?

A. $\frac{9}{20}$

B. $\frac{5}{11}$

C. $\frac{20}{9}$

D. $\frac{11}{5}$

63. Which fraction is equivalent to $0.\overline{88}$?

A. $\frac{4}{5}$

B. $\frac{22}{25}$

C. $\frac{8}{9}$

D. $\frac{8}{11}$

64. Which fraction is equivalent to $0.\overline{15}$?

A. $\frac{5}{33}$

B. $\frac{3}{20}$

C. $\frac{1}{6}$

65. Which set of numbers are all irrational numbers?

A. $\{\pi, \sqrt{2}, \sqrt{9}\}$

B. $\left\{-3, \frac{-2}{7}, \sqrt{16}\right\}$

C. $\{\sqrt{8}, \sqrt{12}, \sqrt{17}\}$

D. $\{\sqrt{25}, \sqrt{36}, \sqrt{49}\}$

66. Which statement is false?

A. π is an example of an irrational number.

B. Irrational numbers have no exact decimal equivalent.

C. An irrational number can be written as a ratio using two integers.

D. An irrational number can be written as a non-terminating, non-repeating decimal.

67. **Which number is irrational?**

A. $\frac{3}{16}$

B. $\frac{2}{9}$

C. $\sqrt{4 \times 4}$

D. $\sqrt{2 \times 9}$

68. Which number is a natural number?

A. 1

B. 0

C. $^{-}1$

69. The amount of a solution used in a science class experiment is $0.3\overline{8}$ liquid pint. Which fraction is equivalent to this number?

A. $\frac{19}{50}$

B. $\frac{38}{99}$

C. $\frac{35}{90}$

D. $\frac{107}{90}$

70. Which set of numbers contains only integers?

A. $\{^{-}14, ^{-}0.3, 0, 2\}$

B. $\{^{-}10, 3, 5, 2.75\}$

C. $\left\{0, 1, 2, \frac{21}{4}\right\}$

D. $\{\sqrt{1}, \sqrt{4}, \sqrt{25}, \sqrt{81}\}$

71. **In the 6th century B.C., Pythagoras called "speechless" or "unnamable" numbers irrational numbers. Which set of numbers is irrational?**

A. $4.56565656\ldots$ and $-9\frac{1}{3}$

B. $\frac{12}{3}$ and 0

C. $\sqrt{9}$ and $0.3333\ldots$

D. $\sqrt{2}$ and $1.23459876567\ldots$

72. **Which list of numbers contains an irrational number?**

A. $\frac{1}{5}, 0, \sqrt{9}$

B. $\frac{5}{8}, 2.5, \sqrt{10}$

C. $\frac{3}{17}, 0.40, \sqrt{64}$

D. $\frac{1}{2}, 1.529783, \sqrt{36}$

73. Which fraction is equivalent to $0.0\overline{5}$?

A. $\frac{5}{99}$

B. $\frac{5}{90}$

C. $\frac{5}{11}$

D. $\frac{5}{9}$

74. Which number below is an irrational number?

A. 3.14

B. $\sqrt{9}$

C. $\sqrt[3]{9}$

D. $0.\overline{3}$

75. Which fraction is equivalent to $0.\overline{2}$?

A. $\frac{1}{45}$

B. $\frac{2}{11}$

C. $\frac{2}{9}$

D. $\frac{1}{6}$

76. **Which term applies to the number shown below, if it is a non-repeating, non-terminating decimal?**

2.91547 . . .

A. imaginary
B. irrational
C. rational
D. integer

77. Which number below is irrational?

A. $-0.0\overline{86}$
B. $\frac{9}{16}$
C. $\sqrt{50}$
D. $\sqrt{64}$

78. Which fraction is equivalent to $0.\overline{11}$?

A. $\frac{1}{90}$
B. $\frac{1}{11}$
C. $\frac{1}{10}$
D. $\frac{1}{9}$

79. Which number is an integer?

A. -3.5
B. $-\frac{2}{3}$
C. -4

80. In which set of numbers does the real number $-\sqrt{2}$ belong?

A. irrational and integer

B. irrational only

C. rational and integer

D. rational only

81. Which set of numbers contains only whole numbers?

A. $\left\{4, \frac{1}{2}, 16.7\right\}$

B. $\{-5, 25, 0.3\}$

C. $\{4, 0, \sqrt{36}\}$

82. Which number is irrational?

A. 3.14

B. $\frac{\sqrt{2}}{1}$

C. $-\frac{1}{3}$

D. $-\sqrt{16}$

83. Which number is irrational?

A. $\sqrt{169}$

B. $\frac{2}{3}$

C. $1.99\overline{9}$

D. $\sqrt{18}$

84. Which fraction is equivalent to $0.\overline{45}$?

A. $\frac{9}{20}$

B. $\frac{5}{11}$

C. $\frac{4}{9}$

D. $\frac{4}{5}$

85. Which is a rational number?

A. $\sqrt{25}$

B. $\sqrt{30}$

C. $\sqrt{35}$

86. Which is an irrational number?

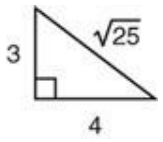
A. $\sqrt{16}$

B. $\sqrt{40}$

C. $\sqrt{64}$

87. **Which triangle has an irrational number as one of its side lengths?**

A.



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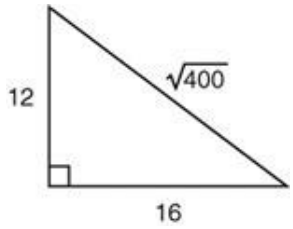

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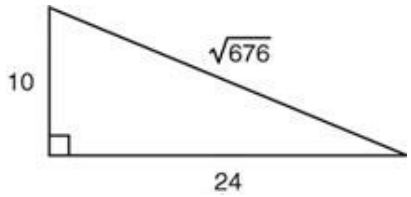
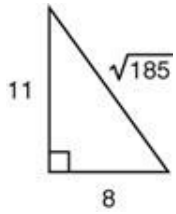


D.



88. Which fraction is equal to $0.555\ldots$?

A. $\frac{5}{11}$

B. $\frac{1}{2}$

C. $\frac{5}{9}$

D. $\frac{5}{8}$

89. A plant grew $1.\overline{3}$ inches within the first month and $0.\overline{5}$ of an inch within the next month. How many total inches did the plant grow in the first two months?

A. $1\frac{1}{8}$

B. $1\frac{4}{5}$

C. $1\frac{5}{6}$

D. $1\frac{8}{9}$

90. **Which of the following numbers is irrational?**

A. $\frac{5}{8}$

B. $\frac{2}{3}$

C. $\sqrt{12}$

D. $-\sqrt{36}$

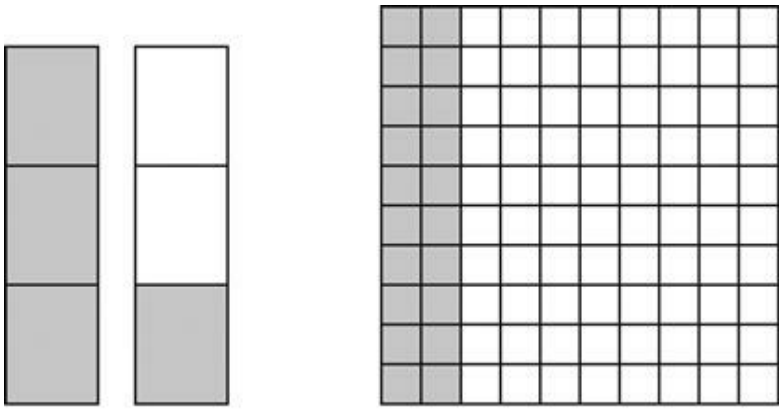
91. Which fraction is equivalent to $0.\overline{07}$?

A. $\frac{7}{100}$

B. $\frac{7}{99}$

C. $\frac{7}{90}$

92. **Tina drew and shaded two models on graph paper to represent numbers.**



Model 1 **Model 2**

Which term describes both of the modeled numbers?

A. integers
B. whole numbers
C. rational numbers
D. irrational numbers

93. Which number below is irrational?

A. $\sqrt[3]{8}$

B. $\sqrt[3]{125}$

C. $\sqrt{49}$

D. $\sqrt{52}$

94. Which statement is true about the number $0.\overline{03}$?

A. The number cannot be located on a number line.

B. The number cannot be written as a fraction.

C. The number is irrational.

D. The number is rational.

95. **Which fraction represents a repeating decimal?**

A. $\frac{3}{11}$

B. $\frac{3}{10}$

C. $\frac{3}{8}$

D. $\frac{3}{5}$

96. In which set(s) of numbers does $\sqrt{41}$ belong?

A. rational only

B. irrational only

C. rational and natural

D. irrational and natural

97. Which number below is an example of a natural number?

A. 0.1

B. $\frac{1}{2}$

C. $\sqrt{3}$

D. $\sqrt{9}$

98. **Which fraction is equivalent to** $0.0\overline{3}$?

A. $\frac{1}{3}$

B. $\frac{1}{30}$

C. $\frac{3}{10}$

D. $\frac{3}{1000}$

99. **Jake found the hypotenuse of a right triangle to be an irrational number. Which could be the number he found?**

A. 19.7

B. $12\frac{1}{3}$

C. $\sqrt{16}$

D. $\sqrt{2}$

100. **Which fraction is equivalent to $0.8\overline{3}$?**

A. $\frac{1}{3}$
B. $\frac{3}{8}$
C. $\frac{83}{100}$
D. $\frac{5}{6}$

101. **Which of the following is a rational number?**

A. 0
B. $\sqrt{5}$
C. π
D. $\sqrt{12}$

102. **Which fraction is equivalent to $0.\overline{6}$?**

A. $\frac{1}{16}$
B. $\frac{1}{6}$
C. $\frac{1}{3}$
D. $\frac{2}{3}$

103. Which fraction is equivalent to $0.\overline{5}$?

A. $\frac{1}{2}$
B. $\frac{5}{9}$
C. $\frac{5}{11}$

104. Which number is a rational number that can be converted into a fraction?

A. $-6.153638\ldots$
B. $0.5\overline{9}$
C. -4π
D. $\sqrt{7}$

105. **Which fraction is equivalent to a repeating decimal?**

A. $\frac{3}{4}$

B. $\frac{3}{5}$

C. $\frac{3}{8}$

D. $\frac{3}{11}$

106. **Which number is irrational?**

A. $-\sqrt{625}$

B. $-\frac{\sqrt{9}}{9}$

C. $\sqrt{15}$

D. $\sqrt{100}$

107. **Which number is rational?**

A. $-\sqrt{5}$

B. π

C. $\sqrt{10}$

D. 0.4

108. Which fraction is equivalent to $0.\overline{55}$?

A. $\frac{5}{11}$

B. $\frac{1}{2}$

C. $\frac{5}{9}$

D. $\frac{5}{7}$

109. **Terri is playing a math card game and has dealt each player four math cards.**

Lisa: $2, \sqrt{2}, -5, \frac{1}{2}$
Ben: $0.\overline{435}, 0.5, \sqrt{25}, 0$
Kari: $\pi, 2, 6, -2$
Terri: $\sqrt{200}, \pi, \sqrt{50}, 1.43256744376665\ldots$

Which person's hand contains all rational numbers?

A. Lisa
B. Ben
C. Kari
D. Terri

110. Which fraction is equal to 0.5?

A. $\frac{11}{20}$
B. $\frac{9}{20}$
C. $\frac{5}{11}$
D. $\frac{5}{9}$

111. **Which of the following numbers is irrational?**

A. 2.1245
B. 3.95
C. 0.231124...
D. $\frac{6.5}{10}$

112. **Which of the following numbers is irrational?**

A. $\sqrt{16}$
B. $\sqrt{5}$
C. $\sqrt{25}$
D. $\sqrt{100}$

113. **Which set of numbers does not contain 70?**

A. integers
B. whole numbers
C. natural numbers
D. irrational numbers

114. In which sets of numbers does $^{-}51$ belong?

A. integer and rational

B. integer and whole

C. irrational and natural

D. whole and natural

115. Which of these is a rational number?

A. $\sqrt{254}$

B. $\frac{\sqrt{125}}{5}$

C. $-\frac{\sqrt{4}}{2}$

D. $-\sqrt{3}$

116. In which set(s) of numbers does π belong?

A. irrational only

B. rational only

C. rational and integer

D. rational, integer, and natural