Math 095 Review Unit 1

Tell which set or sets the number belongs to: natural numbers, whole numbers, integers, rational numbers, irrational numbers, and real numbers.

1) $\frac{7}{19}$

2) $\sqrt{10}$

Tell whether the statement is true or false.

3) Every rational number is an integer.

4) Every whole number is a real number.

Find the absolute value of the number.

5) $|-24|$

Insert <, >, or = to make the statement true.

6) $|-1|$ ____ $|-13|$

7) $-|-16|$ ____ $-|-39|$

Write the number as a product of primes.

8) 60

Write the fraction in lowest terms.

9) $\frac{44}{55}$

Multiply or divide as indicated. Write the answer in lowest terms.

10) $\frac{7}{4} \cdot \frac{5}{2}$

11) $\frac{2}{9} \div \frac{7}{4}$

12) $\frac{9}{7} \cdot \frac{1}{6}$

Add or subtract as indicated. Write the answer in lowest terms.

13) $\frac{1}{9} + \frac{1}{9}$

Multiply or divide as indicated. Write the answer in lowest terms.

14) $\frac{1}{18} \div \frac{3}{16}$

Write the fraction in lowest terms.

15) $\frac{21}{27}$

Add or subtract as indicated. Write the answer in lowest terms.

16) $\frac{7}{9} - \frac{3}{7}$

17) $\frac{4}{7} + \frac{5}{8}$

Simplify the expression.

18) $7^2 - 4 \cdot 7$

Evaluate the expression when x = 2, y = 1, and z = 4.

19) $\frac{y}{5x}$

20) $6x + 3$

21) $|5z - 4y|$

Decide whether the given number is a solution of the given equation.

22) Is 14 a solution of $x - 2 = 12$?

23) Is 10 a solution of $x + 1 = 11x$?

Add.

24) $3 + (-6)$

25) $-12 + (-4)$

Simplify the expression.

26) $\frac{36(6 - 3) - 6}{3^2 - 3}$

27) $(8 + 2)[2 + (4 + 8)]$

28) $\frac{53 + 7}{3^2 - 4}$

Add.

29) $|-6| + 35$

Subtract.

30) $-3 - 12$

Perform the operation.

31) Subtract –6 from 5.

Subtract.

32) $\frac{2}{3} - \left(\frac{2}{63}\right)$

33) 6 – (–1)

Add.

34) $\frac{5}{9} + \left(-\frac{8}{9}\right)$

Simplify the expression. (Remember the order of operations.)

35) –20 – 0 – (–9) – 15 + 2

36) 4 – (–12) + (–20)

Multiply.

37) –7(–1)

Simplify the expression. (Remember the order of operations.)

38) (4 – 3)(2 + 6) – 3^3

39) 11 – (–17) + 3

Simplify the expression.

40) $\frac{1}{3} + \frac{1}{6} \cdot \frac{1}{4}$

Multiply.

41) (–8)(–7)(–3)

42) (–3)(5)(–2)(–5)

Evaluate.

43) $(-11)^2$

Find the reciprocal or multiplicative inverse.

44) –5

Evaluate.

45) -5^2

Multiply.

46) –11(5)

Evaluate.

47) $(-6)^3$

Divide.

48) $\frac{-162}{9}$

Solve the equation.

49) $4 = r - 3$

Divide.

50) $-\frac{45}{5}$

Solve the equation.

51) $-7c + 5 + 5c = -3c + 10$

52) $3(y + 4) = 4(y - 6)$

53) $\frac{1}{5} + f = 7$

54) $-\frac{1}{11}k = -\frac{5}{11}$

55) $-5n = -35$

Divide.

56) $\frac{-88}{-4}$

57) $\frac{-12}{-4}$

Find the reciprocal or multiplicative inverse.

58) $\frac{1}{7}$

Perform the indicated operations.

59) $(-4)(3) - (-14)(8)$

Solve the equation.

60) $12x = 0$

61) $\frac{x}{3} - 8 = -2$

62) $6x + 5 - 8x - 5 = 6x - 8x - 3$

63) $5(x + 3) = (5x + 15)$

64) $-2(x - 7) - 140 = 5x - 7(x + 8)$

65) $3x - 8x + 2 = -6x$

Solve.

66) A 6–ft. board is cut into 2 pieces so that one piece is 2 feet longer than 3 times the shorter piece. If the shorter piece is x feet long, find the lengths of both pieces.

Solve the equation.

67) $\frac{2}{5}x - \frac{1}{3}x = 2$

Solve.

68) The perimeter of a triangle is 52 centimeters. Find the lengths of its sides, if the longest side is 5 centimeters longer than the shortest side, and the remaining side is 2 centimeters longer than the shortest side.

69) The sum of three consecutive integers is 417. Find the numbers.

Solve the equation.

70) $\frac{1}{5}x + \frac{6}{5} = \frac{1}{7}x + \frac{8}{7}$

71) $(y - 7) - (y + 3) = 3y$

72) $\frac{1}{4}(x + 6) = \frac{1}{6}(x + 8)$

Solve the formula for the specified variable.

73) $A = \frac{1}{2}bh$ for h

74) $d = rt$ for t

Solve the equation.

75) $4z - 7 + 4(z + 1) = -(5z - 5)$

76) $2x - 5x = 4 - 19$

77) $\frac{1}{4}a - \frac{1}{4} = -2$

Solve. If needed, round money amounts to two decimal places and all other amounts to one decimal place.

78) A company increased the number of its employees from 140 to 215. What was the percent increase in employees?

79) Due to a lack of funding, the number of students enrolled at City College went from 7000 last year to 4000 this year. Find the percent decrease in enrollment.

Solve. Round all amounts to one decimal place.

80) 30% of what number is 60?

81) 60% of what number is 70?

Solve the formula for the specified variable.

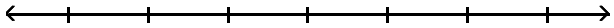
82) $A = P + PRT$ for R

Solve.

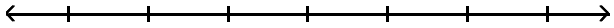
83) How can \$42,000 be invested, part at 4% annual simple interest and the remainder at 10% annual simple interest, so that the interest earned by the two accounts is equal at the end of the year?

Solve the inequality. Graph the solution set and write it in interval notation.

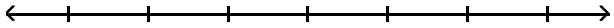
84) $11x - 1 > 10x + 8$



85) $-5 \geq \frac{1}{4}x$

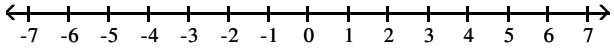


86) $15x - 35 > 5(2x - 11)$

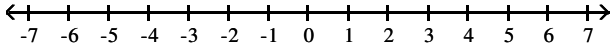


Graph the inequality on a number line. Then write the solution in interval notation.

87) $-4 < x < 0$

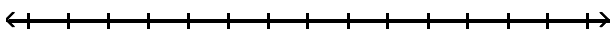


88) $-2 \leq x < 2$

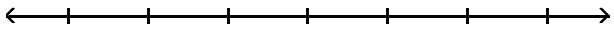


Solve the inequality. Graph the solution set and write it in interval notation.

89) $7 \leq 2x + 3 \leq 17$



90) $9x + 24 \leq 3(2x - 1)$



Solve.

91) Kevin invested part of his $10,000 bonus in a certificate of deposit that paid 6% annual simple interest, and the remainder in a mutual fund that paid 11% annual simple interest. If his total interest for that year was $900, how much did Kevin invest in the mutual fund?

Add or subtract as indicated. Write the answer in lowest terms.

92) $\frac{11}{20} - \frac{7}{16}$

Write the fraction in lowest terms.

93) $\frac{30}{50}$

Write the number as a product of primes.

94) 32

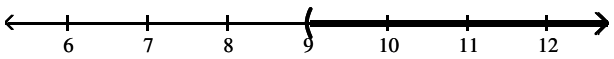
Tell whether the statement is true or false.

95) Some rational numbers are integers.

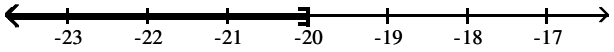
1) rational, real
2) irrational, real
3) False
4) True
5) 24
6) <
7) >
8) $2 \cdot 2 \cdot 3 \cdot 5$
9) $\frac{4}{5}$
10) $4\frac{3}{8}$
11) $\frac{8}{63}$
12) $\frac{3}{14}$
13) $\frac{2}{9}$
14) $\frac{8}{27}$
15) $\frac{7}{9}$
16) $\frac{22}{63}$
17) $\frac{67}{56}$
18) 21
19) $\frac{1}{10}$
20) 15
21) 16
22) yes
23) no
24) −3
25) −16
26) 17
27) 140
28) 12
29) 41
30) −15
31) 11
32) $\frac{40}{63}$
33) 7
34) $-\frac{1}{3}$
35) −24

36) −4
37) 7
38) −19
39) 31
40) $\frac{3}{8}$
41) −168
42) −150
43) 121
44) $-\frac{1}{5}$
45) −25
46) −55
47) −216
48) −18
49) 7
50) −9
51) 5
52) 36
53) $\frac{34}{5}$
54) 5
55) 7
56) 22
57) 3
58) 7
59) 100
60) 0
61) 18
62) no solution
63) all real numbers
64) no solution
65) − 2
66) shorter piece: 1 ft; longer piece: 5 ft
67) 30
68) 15 cm, 17 cm, 20 cm
69) 138, 139, 140
70) −1
71) $-\frac{10}{3}$
72) −2
73) $h = \frac{2A}{b}$
74) $t = \frac{d}{r}$
75) $\frac{8}{13}$
76) 5

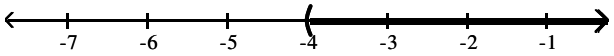
77) -7
78) 53.6%
79) 42.9%
80) 200
81) 116.7
82) $R = \frac{A - P}{PT}$
83) \$30,000 invested at 4%; \$12,000 invested at 10%
84) $(9, \infty)$



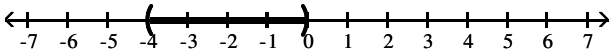
85) $(-\infty, -20]$



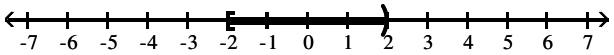
86) $(-4, \infty)$



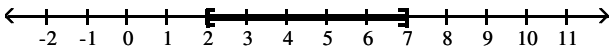
87) $(-4, 0)$



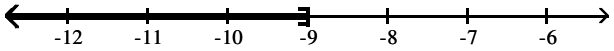
88) $[-2, 2)$



89) $[2, 7]$



90) $(-\infty, -9]$



91) \$6000
92) $\frac{9}{80}$
93) $\frac{3}{5}$
94) $2 \cdot 2 \cdot 2 \cdot 2 \cdot 2$
95) True