Placement Test – Level I

Directions: Complete all problems to the best of your ability. Show all of your work. You may use a calculator on any problem that doesn't state that a calculator is prohibited. There is no time limit. Each problem is worth 1 point. When you are done, please grade your test using the "Placement Test – Level I – Answer Key".

1. Multiply. $(x + 7)(x + 3)$

2. Write a numerical expression for the verbal phrase.

"fifteen minus the quotient of eleven and two"

a) 15 – 11 ÷ 2

b) 11 ÷ 2 – 15

c) 15 ÷ 11 – 2

d) 15 – 2 ÷ 11

3. Evaluate the following expression for the given values.

5a + 3b – 7c + 9, if a = 2, b = 4 and c = -1.

a) 24

b) 38

c) 36

d) 20

4. Rewrite the expression $(7 \cdot x) \cdot 13$ using the Associative Property.

5. Simplify the following expression using order of operations.

$$6(14 + 2) - 8 \cdot 3 + 5$$

a) 125

b) 103

c) 269

d) 77

6. Put the following integers in order from greatest to least.

-5, 17, 2, -1, 16

7. Evaluate the following expression.

$$|-6| + |13| - |-7|$$

a) 0

b) 26

c) 14

d) 12

8. Simplify the following expression.

$$4(2x) – 5y + 9z + 10(4x) – 3y$$

a) $32x – 8y + 9z$

b) $22x + 8y + 9z$

c) $48x – 8y + 9z$

d) cannot be simplified

9. In which quadrant would the point (-5, 8) be located?

a) Quadrant 1

b) Quadrant 2

c) Quadrant 3

d) Quadrant 4

10. Simplify the following expression.

$$7(x + 2) – 5(3x – 1) + 12x$$

a) $4x + 9$

b) $11x + 19$

c) $4x + 19$

d) $4x - 12$

11. Translate the sentence to an equation and solve the equation to find the value of x.

"The difference of x and eight is negative seven."

a) $x - 8 = -7$; $x = 1$

b) $8 - x = -7$; $x = 15$

c) $x + 8 = -7$; $x = -15$

d) $x - 8 = -7$; $x = -15$

12. Translate the sentence to an equation and solve the equation to find the value of x.

"The quotient of negative thirty and x is two."

13. Translate the sentence to an equation and solve the equation to find the value of n.

"If nine is decreased by four times n, the result is thirteen."

14. Find the perimeter of a rectangle with a width of (3x + 2) and a length of 4x.

15. Simplify the following expression.

$$x^7 \cdot x^2 \cdot x$$

a) x^{15}

b) x^9

c) x^{14}

d) x^{10}

16. Write the expression using exponents. Then evaluate the expression using x = 4 and y = -3.

$$3 \cdot 3 \cdot y \cdot y \cdot y \cdot x \cdot x$$

a) $3^2x^2y^3$; -3888

b) $3^2x^3y^2$; 5184

c) $3^3x^2y^2$; -5184

d) $3^2x^2y^3$; 3888

17. Find the Greatest Common Factor (GCF) of the following set of numbers.

240, 80, 50

a) 10

b) 5

c) 2

d) 15

18. Which of the following numbers is divisible by 3 and 9?

a) 231

b) 729

c) 654

d) 691

19. Write the following expression using negative exponents.

$$\frac{1}{x^7}$$

20. Write the following number in scientific notation.

.00000743

21. Find the product and write it in simplest form.

$$\frac{4}{7} \times 5\frac{1}{3}$$

a) $2\frac{18}{21}$

b) $3\frac{5}{21}$

c) $3\frac{1}{21}$

d) $5\frac{4}{21}$

22. Find the quotient and write it in simplest form.

$$4\frac{3}{8} \div \frac{1}{4}$$

a) $17\frac{1}{2}$

b) $16\frac{3}{8}$

c) $5\frac{1}{2}$

d) $\frac{35}{32}$

23. Solve the formula for y. $3x + 5y = -6$

24. Simplify. $\frac{2}{7} - \frac{9}{12}$

25. A jaguar can run up to 50 miles per hour. How many feet per second is this?

(1 mile = 5280 feet)

a) 70 feet per second

b) 65.67 feet per second

c) 60 feet per second

d) 73.33 feet per second

26. Solve for x.

$$\frac{4}{5} = \frac{16}{x-7}$$

a) x = 12

b) x = 16

c) x = 23

d) x = 27

27. In a lake containing 180 fish, 60% are trout. How many of the fish are trout?

a) 60

b) 108

c) 72

d) 44

28. A pair of shorts is on sale at a 20% discount. The original price of the shorts was $24.90. What is the sale price?

a) $19.92

b) $5.99

c) $29.88

d) $4.98

29. Find the slope of the line containing the points (-1, 3) and (4, -7).

a) m = 1

b) $m = \frac{7}{3}$

c) m = -2

d) $m = \frac{-1}{2}$

30. Solve for x. $5(4 + x) - 7 = 9x + 12$

31. Factor. 5x + 35

32. Solve the inequality. $\frac{4}{5}x + 7 < -3$

33. Name the complementary angle to 54°.

a) 46°

b) 126°

c) 36°

d) 136°

34. If two angles of a triangle are 28° and 117°, what is the third angle?

a) 45°

b) 35°

c) 55°

d) 110°

35. Find the LCM of the following numbers.

12, 28, 36

36. Write the following phrase in decimal form.

“five hundred and thirty-four thousandths”

37. Write the following number in words.

6,485,920,001

38. Simplify.

$$(-3)^5$$

a) 243

b) -81

c) 81

d) -243

39. Write the following number in standard notation.

$$9.623 \times 10^{-5}$$

a) 0.00009623

b) 962,000

c) 0.0009623

d) 96,200

40. Simplify the following. Write the final answer in scientific notation.

$$(4.3 \times 10^{6})(9.2 \times 10^{-3})$$

a) 3.956×10^{4}

b) 13.5×10^{3}

c) 3.956×10^{-18}

d) 1.35×10^{4}

41. Find the prime factorization of 4680.

42. Approximate $\sqrt{33}$ to the nearest tenth.

a) 11.3

b) 6.1

c) 5.7

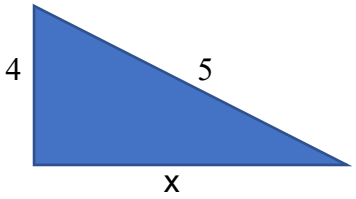
d) 3.4

43. Simplify the following. $\frac{\sqrt{25}}{4\sqrt{81}}$

44. Find the rate if a principal of $3700 earned $814 in interest in 4 years. The simple interest formula is I = Prt.

45. Three angles of a triangle are 4x, 5x, and 6x + 15. Find the measure, in degrees, of each angle.

46. Find the length of side x.



47. Solve for y. $-2(y + 8) - 6y = -(9y + 1) - 12$

48. Solve. Write the answer in simplest form.

$$\frac{1}{3} \cdot \frac{2}{5}\left(\frac{1}{2} + \frac{15}{2}\right) - \frac{1}{4}$$

49. Angle 1 and Angle 2 are supplementary angles. Find the degree measurement of each angle if Angle 1 is (3x + 2) and Angle 2 is (7x + 8).

a) 17° and 163°

b) 29° and 61°

c) 29° and 151°

d) 53° and 127°

50. Find the area of a triangle with a base of 8m and a height of 14m. The area formula for a triangle is $A = \frac{1}{2}bh$.

a) 22 m^2

b) 112 m^2

c) 56 m^2

d) 224 m^2

51. The area of a circle is 100 in^2. Find the circumference. Round to the nearest tenth if necessary. (Use 3.14 for π). The area of a circle is $A = \pi r^2$ and the circumference of a circle is $C = \pi d$.

a) 35.2 in

b) 11.2 in

c) 32.0 in

d) 314 in

52. Find the volume of a cylinder if the radius is 20 ft and the height is 120 ft. (Use 3.14 for π). The volume of a cylinder is $V = \pi r^2 h$.

a) 150,720 ft^3

b) 7,536 ft^3

c) 37,680 ft^3

d) 602,880 ft^3

53. Find the x- and y-intercepts of the given line.

$$3x + 4y = 12$$

54. Simplify. $(-5x^4y^7)^3$

55. Evaluate the polynomial for the given value of x.

$8x^2 - 7x + 4$ when x = -2

56. Simplify. $\left(\frac{z^5}{z^9}\right)^2$

57. Joseph has $1.55 in nickels and dimes in his pocket. He has seven more nickels than dimes. How many of each type of coin does he have?

58. Write the fraction $\frac{-5}{8}$ as a decimal without using a calculator.

59. Subtract. $(6x^2 - 4y - 9) - (7x^2 + 5y - 2)$

60. What percent of 135 is 64.8?

a) 42%

b) 48%

c) 60%

d) 70%