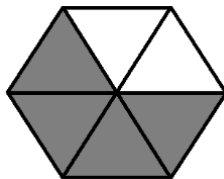


2021 – 2022 TMSCA Elementary School Invitational Mathematics Test

1. $66 + 78 =$ _____
 A. 124 B. 154 C. 144 D. 134 E. 114
2. $81 - 54 =$ _____
 A. 33 B. 27 C. 37 D. 35 E. 23
3. $21 \times 17 =$ _____
 A. 38 B. 357 C. 374 D. 340 E. 337
4. $92 \div 4 =$ _____
 A. 88 B. 26 C. 18 D. 27 E. 23
5. Which of the following is not a factor of the number 42?
 A. 14 B. 21 C. 6 D. 7 E. 18
6. 7 quarters + 11 dimes + 6 nickels + 15 pennies = _____
 A. \$3.20 B. \$3.30 C. \$3.25 D. \$3.35 E. \$3.40
7. Let $A = 173 + 236$. What is the value of A rounded to the nearest ten?
 A. 410 B. 400 C. 420 D. 390 E. 380
8. What is the mean of the numbers 34, 11, and 24?
 A. 11 B. 24 C. 69 D. 23 E. there is no mean
9. What is the mixed number $8\frac{4}{5}$ written as an improper fraction?
 A. $\frac{17}{5}$ B. $\frac{44}{5}$ C. $\frac{17}{8}$ D. $\frac{17}{4}$ E. $\frac{37}{8}$
10. Which digit is in the hundreds place in the number 43,875?
 A. 4 B. 3 C. 8 D. 7 E. 5
11. What fraction of the hexagon is shaded?



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

12. How many edges does a cube have?
 A. 6 B. 4 C. 8 D. 12 E. 16

13. Which of the following is a prime number?
 A. 24 B. 15 C. 12 D. 4 E. 2

14. An angle measuring 90° is called which of the following?
 A. acute angle B. obtuse angle C. right angle D. straight angle E. reflex angle

15. 16 is one-half of which number?

- A. 4 B. 8 C. 32 D. 64 E. 2

16. Marisal has \$26.00 to spend on 8 new pens. After buying the new pens, Marisal has \$10.00 remaining. How much did each new pen cost?

- A. \$1.50 B. \$2.00 C. \$2.50 D. \$3.00 E. \$4.00

17. $25 \times 48 =$ _____

- A. 1,200 B. 1,350 C. 1,450 D. 1,250 E. 1,400

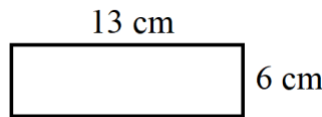
18. Louis started with \$14.00. He gave half of his money to his sister and then gave \$4.00 to his brother. How much money does Louis have remaining?

- A. \$6.00 B. \$4.00 C. \$5.00 D. \$3.00 E. \$2.00

19. What is the reciprocal of the fraction $\frac{2}{9}$?

- A. $\frac{9}{2}$ B. $\frac{4}{18}$ C. $\frac{20}{90}$ D. 0.2 E. $0.\bar{2}$

20. What is the perimeter of the rectangle?



- A. 7 cm B. 78 cm C. 38 cm D. 19 cm E. 39 cm

21. How many sides does octagon have?

- A. 10 B. 6 C. 5 D. 8 E. 9

22. Susan jogged for 25 minutes on Monday, 19 minutes on Tuesday, and 32 minutes on Wednesday. In total, how long did Susan jog for the three days?

- A. 1 hour 14 minutes B. 56 minutes C. 1 hour 16 minutes D. 58 minutes E. 1 hour 8 minutes

23. Chris is going to order a milk shake. He must choose a size from small, medium, or large, a flavor from vanilla, chocolate, or strawberry, and either with or without whipped cream. How many choices of milk shake can Chris choose from?

- A. 12 B. 16 C. 27 D. 24 E. 18

24. $\frac{1}{4} + \frac{5}{12} =$ _____

- A. $\frac{3}{8}$ B. $\frac{2}{3}$ C. $\frac{1}{2}$ D. $\frac{3}{4}$ E. $\frac{7}{8}$

25. What is the prime factorization of the number 50?

- A. 1×50 B. 2×25 C. $2 \times 2 \times 5$ D. $2 \times 5 \times 5$ E. $2 \times 2 \times 5 \times 5$

26. A summer pass to *Movie Town* costs \$20.00. If a total of 100 people paid for a summer pass to *Movie Town*, what was the total cost of the summer passes?

- A. \$40 B. \$20,000 C. \$2,000 D. \$200 E. \$400

27. What is 79% expressed as a decimal?

- A. 0.79 B. 7.9 C. 79.0 D. 0.079 E. 790.0

28. What is the next term of the sequence? 56, 47, 38, 29, ...

- A. 19 B. 18 C. 21 D. 17 E. 20

29. What is the unit rate of buying 7 ballet tickets for \$84.00?

- A. \$14.00 per ticket B. \$16.00 per ticket C. \$10.00 per ticket D. \$12.00 per ticket E. \$8.00 per ticket

30. How many rectangles can be found in the picture below?



- A. 15 B. 16 C. 18 D. 10 E. 5

31. How many total diagonals can be drawn from one vertex of a regular pentagon?

- A. 2 B. 3 C. 4 D. 5 E. 10

32. What is the Greatest Common Factor of the numbers 36 and 48?

- A. 8 B. 4 C. 12 D. 18 E. 144

33. What number goes in the square to make the equation true?

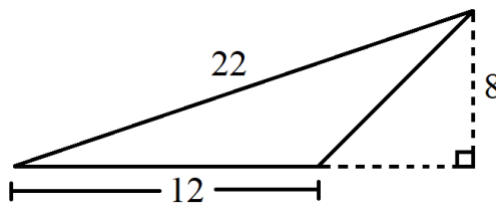
$$6 + \square \div 10 = 9$$

- A. 30 B. 84 C. 54 D. 19 E. 3

34. 4 grams = _____ centigrams

- A. 4 B. 40 C. 400 D. 4,000 E. 40,000

35. What is the area of the triangle below?



- A. 96 units² B. 48 units² C. 132 units² D. 66 units² E. 88 units²

36. What is the probability of rolling a pair of dice and getting a 5 on one die and a 2 on the other?

- A. $\frac{1}{36}$ B. $\frac{1}{6}$ C. $\frac{1}{9}$ D. $\frac{1}{18}$ E. $\frac{1}{12}$

37. How old is Lincoln if 200 reduced by 2 times his age is equal to 128?

- A. 28 B. 44 C. 38 D. 42 E. 36

38. The sum of three consecutive even integers is 78. What is the largest of these integers?

- A. 32 B. 26 C. 30 D. 28 E. 24

39. $4! =$ _____

- A. 4 B. 24 C. 16 D. 12 E. 36

40. If an angle measures 20° , what is the measure of its supplement?

- A. 70° B. 80° C. 160° D. 180° E. 220°

41. What is the Least Common Multiple of the numbers 40 and 32?

- A. 80 B. 8 C. 160 D. 4 E. 320

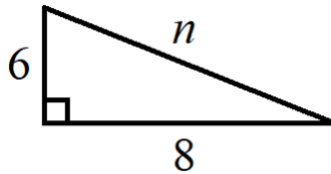
42. What is 40% of 220?

- A. 96 B. 108 C. 94 D. 92 E. 88

43. How is the number 57,000,000 expressed in scientific notation?

- A. 5.7×10^7 B. 5.7×10^{-7} C. 57×10^6 D. 57×10^{-6} E. 0.57×10^8

44. What is the value of n in the picture below?



- A. 14 B. 10 C. 12 D. 16 E. 15

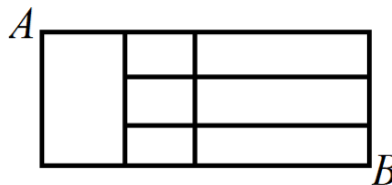
45. $2^4 =$ _____

- A. 8 B. 16 C. 24 D. 12 E. 2.4

46. If $3n = 54$, then what is the value of $4n - 18$?

- A. 36 B. 48 C. 42 D. 54 E. 56

47. Moving only down or to the right, how many paths exist from point A to point B?



- A. 12 B. 8 C. 15 D. 18 E. 11

48. 2 gallons = _____ ounces

- A. 128 B. 264 C. 284 D. 196 E. 256

49. Simplify: $-17 + (-15) - (-14)$

- A. -18 B. -46 C. -12 D. 12 E. -16

50. Which number is the multiplicative inverse of the number 18?

- A. 18.0 B. -18 C. $\frac{1}{18}$ D. $\frac{18}{1}$ E. 36

2021 – 2022 TMSCA Elementary School Invitational Mathematics Test Answer Key

1. C	18. D	35. B
2. B	19. A	36. D
3. B	20. C	37. E
4. E	21. D	38. D
5. E	22. C	39. B
6. B	23. E	40. C
7. A	24. B	41. C
8. D	25. D	42. E
9. B	26. C	43. A
10. C	27. A	44. B
11. B	28. E	45. B
12. D	29. D	46. D
13. E	30. A	47. E
14. C	31. A	48. E
15. C	32. C	49. A
16. B	33. A	50. C
17. A	34. C	

2021 – 2022 TMSCA Elementary School Invitational Mathematics Test Selected Answers

5. The factors of a number are two numbers whose product is the number. To get 42, multiply 1×42 , 2×21 , 3×14 , and 6×7 . Therefore, the factors of 42 are 1, 2, 3, 6, 7, 14, 21, and 42, which means of the choices given, 18 is not a factor of 42.

14. An angle measuring 90° is called a right angle.

22. 25 minutes + 19 minutes + 32 minutes = 76 minutes = 1 hour 16 minutes.

28. The pattern of the sequence 56, 47, 38, 29, ..., is to subtract 9 from each term to get the next term. Therefore, the next term is $29 - 9 = 20$.

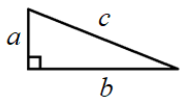
31. The formula to find the total diagonals can be drawn from one vertex of a regular polygon is $n - 3$, where n is the number of sides of the polygon. A pentagon has 5 sides, so the total diagonals can be drawn from one vertex of a regular pentagon is $5 - 3 = 2$.

35. The formula for area of a triangle is $A = \frac{bh}{2}$, where b is the base and h is the height of the triangle. In our picture, the base is 12 and the height is 8. Therefore, the area of the triangle is $A = \frac{12 \times 8}{2} = \frac{96}{2} = 48 \text{ units}^2$.

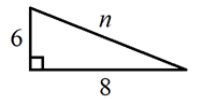
36. Rolling a pair of dice produces $6 \times 6 = 36$ outcomes. There are 2 ways to get a 5 and a 2, which are (5, 2) and (2, 5). Therefore, 2 out of 36 is equal to $\frac{2}{36} = \frac{1}{18}$.

39. The symbol ! represents the factorial function, which means to start at the number and multiply down to 1. Therefore, $4! = 4 \times 3 \times 2 \times 1 = 24$.

44. To find the hypotenuse of a right triangle, use the Pythagorean Theorem, which is $a^2 + b^2 = c^2$, where a and b are the legs and c is the hypotenuse as illustrated in the picture below.



In the given problem, we see that the legs are 6 and 8 and the hypotenuse is n .



Substituting into the formula, and the equation is $6^2 + 8^2 = n^2$. $6^2 = 36$ and $8^2 = 64$, so the equation simplifies to $36 + 64 = c^2$. $36 + 64 = 100$, so $100 = n^2$. The number when squared that is equal to 100 is 10. Therefore, $n = 10$.

45. $2^4 = 2 \times 2 \times 2 \times 2 = 16$.

48. 1 gallon = 128 ounces, so 2 gallons = $2 \times 128 = 256$ ounces.

49. $-17 + (-15) - (-14) = -17 - 15 + 14 = -32 + 14 = -18$.