College Prep Math **Name:** _____
TSIA2 Practice Test 3

Quantitative Reasoning:

includes calculating ratios, proportions, and percents, as well as identifying, manipulating, and interpreting linear equations and expressions.

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1. A certain map has a scale in which $\frac{1}{4}$ inch on the map represents an actual distance of 5 miles. A distance of x miles is represented by how many inches on this map?

A. $\frac{x}{20}$
B. $\frac{x}{10}$
C. 5x
D. 20x

2. Jessica bought 5 binders. Daniel bought 4 binders and a $18.00 ream of paper. Together, Jessica and Daniel spent $58.50. If each binder cost the same amount, how much did each binder cost?

A. $3.00
B. $3.50
C. $4.50
D. $5.00

3. Ralph traveled 13.6 miles in 2.4 hours. At this same rate, which of the following is closest to the time it will take for Ralph to travel 30 miles?

A. 2.3 hours
B. 3.5 hours
C. 5.3 hours
D. 6.5 hours

4. Zelda has 8 bushels of granola. She wants to pour all of the granola into boxes that each hold 1 peck. How many boxes will she need? (4 pecks = 1 bushel)

A. 8
B. 32
C. 48
D. 64

5. Pat bought 11 fruits from a farm. Apples cost $3 each, and oranges cost $4 each. If they paid a total of $37 for the fruit, how many apples did they buy?

A. Four
B. Five
C. Six
D. Seven

Algebraic Reasoning:

includes solving equations (linear, quadratic, polynomial,exponential, rational, and radical), evaluating functions, and solving algebraic problems in context.

6. If x = 2y and x + y = 12, then x =

A. 2
B. 6
C. 8
D. 10

7. If 4x + 1 = 12, what is the value of x?

A. 4/13
B. 4/11
C. 11/4
D. 13/4

8. Factor the trinomial $x^2 - 3x - 10$.

A. (x - 5)(x + 2)
B. (x + 5)(x + 2)
C. (x - 5)(x - 2)
D. (x + 5)(x - 2)

9. Which of the following is equivalent to $2x^2 + 5x - 12$?

A. (x - 6)(2x + 2)
B. (x - 3)(2x + 4)
C. (x + 2)(2x - 6)
D. (x + 4)(2x - 3)

10. $x^3 - 8x$ =

A. $(x - 8)(x^2 - x)$
B. $(x - 8)(x^2 + 1)$
C. $x(x^2 - 8)$
D. $x^2(x - 8)$

Geometric and Spatial Reasoning:

includes converting units within measurement systems, solving geometric problems (perimeter, area, surface area, and volume), performing transformations, and applying right triangle trigonometry.

11. If the length L of a rectangle is 17 less than twice the width W, which of the following gives the length of the rectangle in terms of the width?

A. L = 17 - 2W
B. L = 2W - 17
C. L = 17W - 2
D. L = 2 - 17W

12. The formula for the perimeter of a rectangle with length L and width W is given below. If a rectangle has a perimeter 42, what could be its length L and width W?

$$P = 2(L + W)$$

A. L = 10, W =32
B. L = 21, W = 21
C. L = 12, W = 13
D. L = 14, W = 7

13. If a triangle has sides of length x, x + 2, and x - 1, what is the perimeter of the triangle in terms of x?

A. 3x - 3
B. 3x - 1
C. 3x + 1
D. 3x + 3

14. What is the area of a square that has a perimeter of 32 feet?

A. 28 square feet
B. 36 square feet
C. 49 square feet
D. 64 square feet

15. Figure 2 is a 90° clockwise rotation of Figure 1. Which of the following angles in figure 2 corresponds to $\angle C$ in figure 1?

A. $\angle W$
B. $\angle X$
C. $\angle Y$
D. $\angle Z$

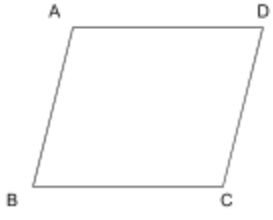


Figure 1

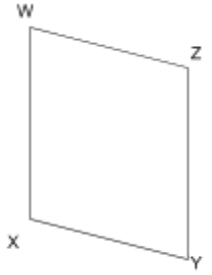


Figure 2

Probabilistic and Statistical Reasoning:

includes classifying data, constructing appropriate representations of data, computing and interpreting probability, and describing measures of center and spread of data.

16. The average of 9, 17, and x is 12. What is the value of x?

A. 6
B. 8
C. 10
D. 12

17. Students in Mrs. Gonzalez's class used rulers to measure the length, in centimeters, of a string. The length of the string was reported as 7.5 cm, 7.6 cm, 7.2 cm, 7.4 cm, and 7.9 cm. Of the following, which measure would best estimate the true length of the string?

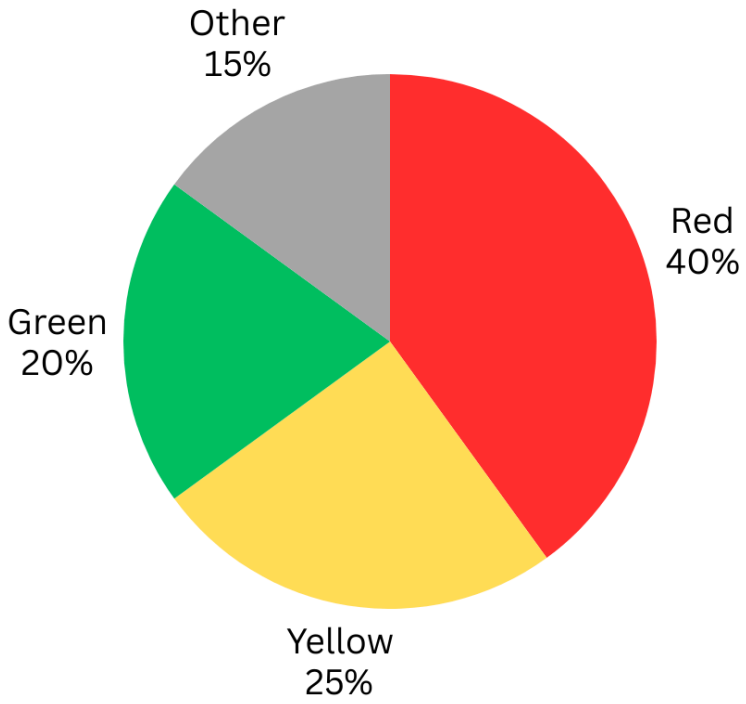
A. Minimum
B. Maximum
C. Mode
D. Mean

18. The table below gives the low temperature in degrees Fahrenheit for 5 cities last Monday. If the median of the 5 temperatures was 32°F, which of the following could have been the low temperature in Austin last Monday?

City	Low Temperature (degrees Fahrenheit)
San Diego	32 °F
New York	19 °F
Austin	x °F
Orlando	63 °F
Portland	57 °F

A. 30°F
B. 35°F
C. 41°F
D. 50°F

19. The circle graph gives the distribution of the colors of markers in a large box. If there are about 3,000 markers in the box, which of the following is closest to the difference between the number of red and green markers?



A. 100
B. 200
C. 300
D. 600

20. The following are scores for 6 students in Ms. Kolab's math class.

113 123 241 224 266 321

What is the range of the scores?

A. 119
B. 208
C. 274
D. 124