

Mathematics Performance Standard

ASSESSMENT TOOL

Number Sense

1.) Put in order from smallest to largest.

4, -1.5, 3, 0.6, $-1/3$

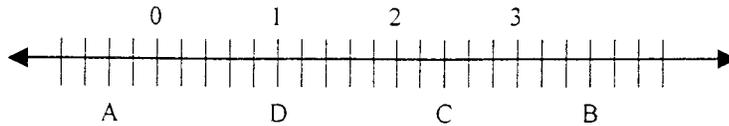
A.) -1.5, $-1/3$, 0.6, 4, 3

B.) $-1/3$, -1.5, 0.6, 3, 4

C.) 4, 3, 0.6, $-1/3$, -1.5

D.) -1.5, $-1/3$, 0.6, 3, 4

2.) Using the number line below, choose the letter that represents 2.4.



3.) Which number is located in the thousandths place?

3,451,678.209384

A.) 1

B.) 9

C.) 4

D.) 5

Operations

- 4.) On Monday the temperature was -4 degrees Fahrenheit. The next day the temperature was 16 degrees Fahrenheit. What is the temperature change between the two days?

A.) 12 B.) 11 C.) 20 D.) 18

- 5.) 612 people attended the Watertown High graduation. 432 attended the Taft graduation. How many more were at the Watertown graduation?

A.) 1044 B.) 220 C.) 180 D.) 170

- 6.) 750 people attended the Waterbury graduation for 150 students. How many people per student attended?

A.) 600 B.) 4 C.) 800 D.) 5

- 7.) You are a coach of a soccer team and you are buying each of your players a hamburger. If you have 15 players and each hamburger costs \$2.75, what is the cost before tax?

A.) \$40.50 B.) \$41.25 C.) \$2.90 D.) \$43.73

Estimation

8.) You go to buy dinner and you order a soft drink for \$3.80, a dinner special for \$12.70, dessert at \$4.29 and you leave a tip of \$1.80. Estimate how much you will need to cover the bill.

- A.) \$20.00 B.) \$24.00 C.) \$22.00 D.) \$23.00

9.) Round 53.75 to the nearest whole number.

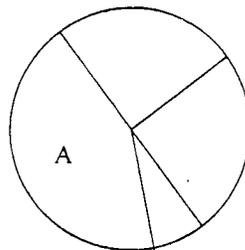
- A.) 53.8 B.) 53.0 C.) 54.0 D.) 50.0

10.) A car travels at 65 miles per hour. How long would it take to travel 360 miles?

- A.) 6 hours B.) 5.25 hours C.) 5 hours D.) 5.5 hours

11.) Estimate the percent of section A in the circle.

- A.) 25% B.) 50%
C.) 10% D.) 40%



Ratios and Proportions

12.) You buy a water heater for \$420.00. CT sales tax is 6%. How much tax would you have to pay?

- A.) \$50.00 B.) \$445.20 C.) \$25.20 D.) \$5.20

13.) A class has 25 students with ten boys. What is the ratio of boys to girls?

- A.) 10:25 B.) 15: 25 C.) 10: 15 D.) 15:10

14.) If twenty out of thirty-five rabbits are white. how many white rabbits will there be in a population of 70 rabbits?

- A.) 35 B.) 40 C.) 50 D.) 30

15.) There are eight hundred sixty students in Watertown High School. 45% of the students play sports. How many students do not play sports?

- A.) 430 B.) 473 C.) 387 D.) 395

Measurement

16.) A room measures 15 feet by 18 feet. Using the area formula, Area = length x width, calculate the area of the room.

- A.) 270 ft^2 B.) 66 ft^2 C.) 33 ft D.) 200 ft

17.) You leave home at 10:15 a.m. and arrive at 3:00 p.m. How long did it take you to complete your trip?

- A.) 5 hrs 15 min. B.) 4 hrs. 15 min. C.) 5 hrs. 45 min. D.) 4 hrs. 45 min.

18.) If you were interested in finding how much water your pool holds, which would you want to calculate?

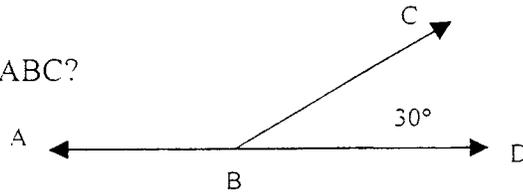
- A.) The perimeter around the pool B.) The surface area of the pool
C.) The area of the pool D.) The volume of the pool

19.) Volume of a room is 800 cubic meters. Which of the following could be the dimensions of the room?

- A.) 8 ft wide 10 ft high 10 ft long B.) 8m wide 10m high 10m long
C.) 10m wide 8m high 8m long D.) 10 ft wide 8 ft high 8 ft long

Spatial Relationships and Geometry

20.) What is the measurement of angle ABC?

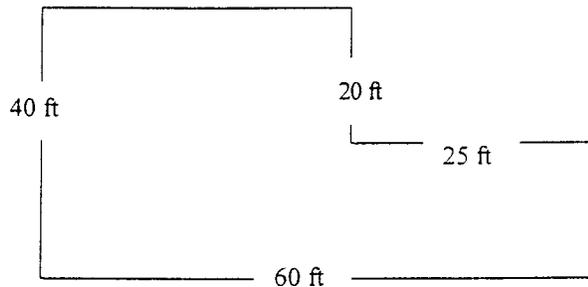


- A.) 60° B.) 70° C.) 150° D.) 170°

21.) A baseball “diamond” is shaped as a square. If the distance between home plate and first base is ninety feet, how far would you have to run if you hit a homerun?

- A.) 360 ft B.) 230 feet C.) 180 feet D.) 90 feet

22.) Office space is rented by the square foot. What is the area, in square feet, of the office that is drawn below?



- A.) 2400 ft² B.) 2900 ft² C.) 1900 ft² D.) 500 ft²

23.) Carpet squares measure 12 inches on each side. How many squares are needed to cover a rectangular floor that is 20 feet long and 16 feet wide?

- A.) 27 B.) 300 C.) 320 D.) 50

Probability and Statistics

24.) Each night, a state lottery chooses one three-digit number from the set of 000-999. What is the probability that the number 314 will be selected in order on March 14? Give your answer as a decimal.

- A.) 0.001 B.) 0.003 C.) 0.03 D.) 0.01

25.) If you roll a six-sided die, what is the probability you will roll an even number?

- A.) $1/6$ B.) $1/2$ C.) $1/3$ D.) $1/4$

26.) If the weatherman predicts that there is a 35% chance of rain for tomorrow, what is the percent it will not rain tomorrow?

- A.) 35% B.) 75% C.) 65% D.) 25%

27.) For which group of numbers will the mean be the largest?

- A.) 5, 18, 25, 7, 2 B.) 5, 250, 4, 3, 17
C.) 6, 27, 34, 25, 5 D.) 4, 22, 7, 16, 40

Patterns

- 28.) The number of diagonals, d , in a regular polygon with n sides is shown in the table below for $n = 3, 4, 5,$ and 6 . Based on the pattern shown in the table, how many diagonals does a regular octagon have?

N	D
3	0
4	2
5	5
6	9
7	14
8	?

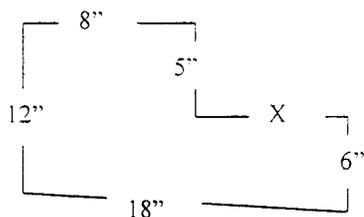
- A.) 8 B.) 20 C.) 28 D.) 12
- 29.) The flag of the United States contains 50 stars. The stars are arranged in alternating rows of six stars and five stars. How many rows are there in all?
- A.) 6 B.) 7 C.) 8 D.) 9
- 30.) Sally is training for the marathon. She runs 13 miles each week. Below is the chart for her times for the first four weeks. How many weeks will she have to train to run thirteen miles in one hour and twenty minutes?

Week	Times
1	2 hours 0 minutes
2	1 hour 52 minutes
3	1 hour 44 minutes
4	1 hour 36 minutes

- A.) 6 B.) 7 C.) 8 D.) 9
- 31.) Omar has \$10.00 in a piggy bank and adds five dollars at the end of each week. How much money will he have at the end of 6 weeks?
- A.) \$30.00 B.) \$35.00 C.) \$40.00 D.) \$45.00

Algebra and Functions

- 32.) A polygon below has a total perimeter of 61 inches. What is the length of the missing side?



- A.) 10" B.) 11" C.) 12" D.) 13"
- 33.) The distance traveled can be measured by the product of speed (or rate) and time. If the distance traveled by one individual was 300 miles in 8 hours, what was the rate at which he traveled?

- A.) 50 mph B.) 37.5 mph C.) 25 mph D.) 32.5 mph

- 34.) A salesman's salary is based on a base monthly salary and commission on sales of 10%. If his base monthly salary is \$1,200.00 and he sells fifteen refrigerators at \$900.00 each, what is his salary for this month?

- A.) \$1,4700.00 B.) \$1,550.00 C.) \$2,550.00 D.) \$3,250.00

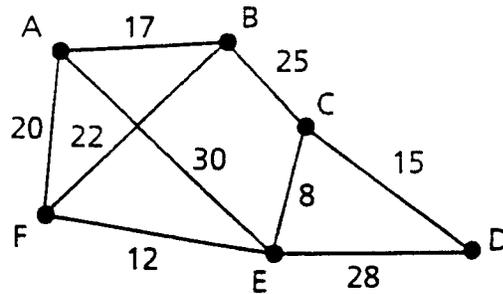
- 35.) Solve the following for x.

$$6x + 7 = 10$$

- A.) $x = 1/3$ B.) $x = 1/2$ C.) $x = 1/4$ D.) $x = 17/6$

Discrete Mathematics

- 36.) The network below shows the routes connecting six locations in a state park and the approximate number of minutes it takes to walk each route. Based on the diagram, what is the least number of minutes it takes to walk from location A to location D?



- A.) 53 minutes B.) 45 minutes C.) 58 minutes D.) 57 minutes
- 37.) Shirley has three skirts, four blouses and 5 pairs of shoes. How many different outfits can she make from these items?
- A.) 12 B.) 17 C.) 60 D.) 23
- 38.) If there are eight runners in a race, how many ways can the runners finish first, second and third place?
- A.) 3 B.) 8 C.) 336 D.) 81
- 39.) Given the following sequence, find the next number in the sequence.

1, 4, 9, 16, 25, _____

- A.) 34 B.) 39 C.) 36 D.) 40

Open Ended Questions

Number Sense

40.) Five towns reported the temperatures shown below as their low temperatures in the month of January.

A.) What was the difference between the highest and lowest temperature reported, in degrees Fahrenheit?

Town	Low Temperature
Bantam	-5° F
Farmington	7° F
Amity	1° F
Hartford	-7° F
Watertown	3° F

B.) Arrange each town from lowest temperature to highest temperature.

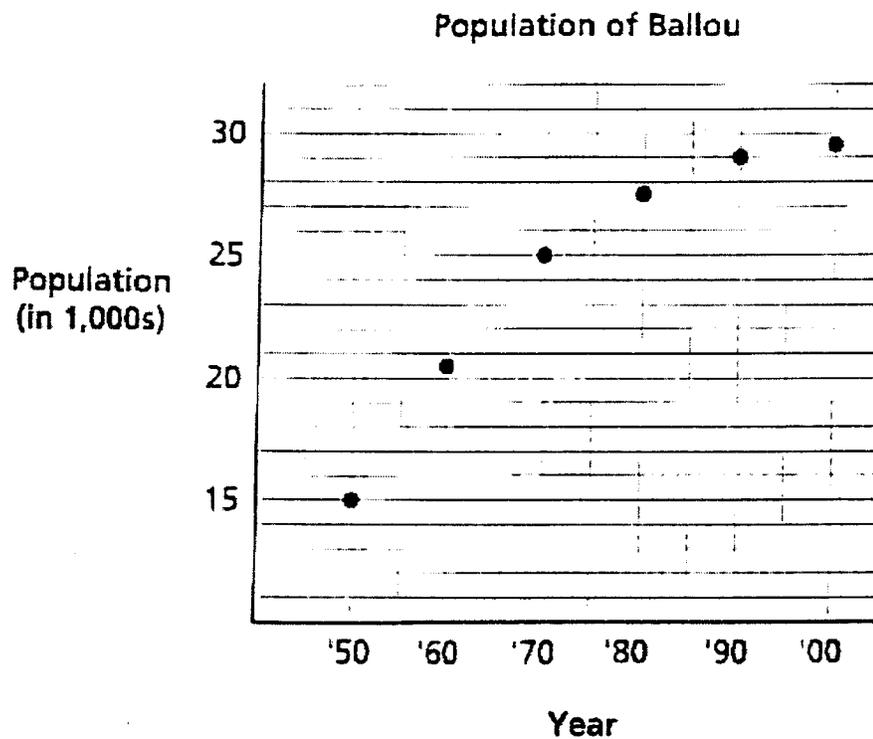
Operations

41.) Which soft drink is the best buy based on price per ounce? Show all work for full credit.

Drink Name	# of ounces	Cost
The Big Thirsty	32 oz	\$0.99
The Super Thirsty	48 oz	\$1.29

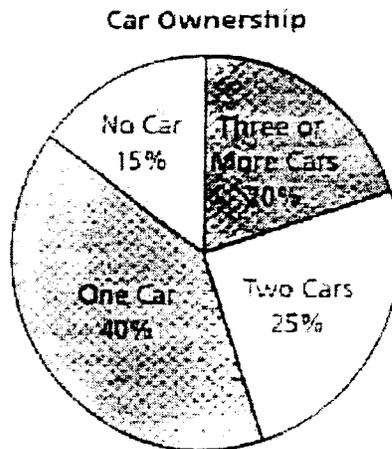
Estimation and Approximation

- 42.) The graph below shows the population of a city every ten years from 1950 to 2000. Based on the graph, estimate the population in 1985 and 2010. Explain fully the reasoning behind your estimates.



Ratio Proportions and Percents

- 43.) In a survey, 50 people said that they own three or more cars. The circle graph shows the results for the entire group surveyed. Use the circle graph to find the number of people surveyed and the number of people in each group.



Hint: Since 50 people represent 20% of the entire group, you can work backward to solve: $50 = 20\%$ of the entire group. Find the total number of people surveyed. Then, find the number of people who have no car, one car, and two cars.

Measurement

- 44.) The math classroom has the dimension of 20 feet deep by 15 feet high by 25 feet wide. Using playing cards with the dimensions of 3" by 4", how many playing cards would be necessary to wallpaper the room? Do not worry about window or doors.

Spatial Relations

- 45.) You are using a cup to fill a saucepan. The dimensions of the cup are the bottom has a diameter of 4 inches and a height of 10 inches. The saucepan has a diameter of 8 inches and a height of 5 inches. Calculate the number of cups of water you will need to fill the saucepan.

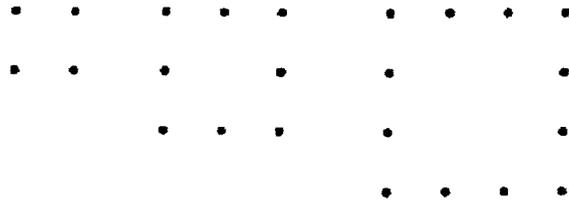
Hint: The equation for the volume of a cylinder is $V = \pi r^2 h$.

Probability and Statistics

- 46.) You are throwing darts at a dartboard. The radius of the dartboard is 6 inches and the radius of the bulls-eye is 2 inches. What is the probability that a dart that hits the dartboard hits the bulls-eye? Express your answer as a fraction.

Patterns

47.) The first three stages of a geometric pattern are shown below.



Part A

Find the number of dots in the next three stages of the pattern.

Part B

Write a formula that states the number of dots at the n th stage of the pattern. Justify your formula.

Algebra and Functions

- 48.) An item was originally priced \$135.00, but is now on sale for $\frac{1}{3}$ off. In addition, there is a $7\frac{1}{2}\%$ sales tax. What would the total price for the item be, including sales tax? Express your answer in dollars and cents.

Discrete Math

- 49.) A sneaker manufacturer sells its Tracker model in three styles: white leather, white canvas, and black leather. It is available in sizes 1 to 13 and all half sizes in-between. If a store wants to order six pairs of each Tracker model in each possible size, how many pairs must it order? Show all your work.

Hint: Concentrate first on the sizes to see how many different ones there are in all. Once you find that number, use multiplication to solve the problem.