Taking the Practice Test

Actual Time Allowed on Test Day: 85 minutes

Number of Questions: 56

Format: Multiple Choice, Multiple Answer, and Numeric Entry

Calculator: When taking the actual test an online four-function calculator (i.e. add, subtract, multiply, divide) is available. For this practice test you are encouraged to use your own four-function calculator.
Question 1

For any point \((x,y)\) on the graph of the line, if \(x\) represents the number of days, then \(y\) could represent the number of

A. months
B. weeks
C. hours
D. minutes
E. seconds
Which of the following is showing the graph of the function $f \ -4x+2y=2$

A. 

B. 

C.
Imagine you are filling up a water jug and the water is coming in at a rate of 2 liters per 25 seconds. At this rate, how much water will be in the jug after 1 minute and 40 seconds?

A. 4 liters  
B. 10 liters  
C. 8 liters  
D. 9 liters  
E. 5.5 liters
Which of the following statements are true? Mark all that apply.

A) Angle $c$ equals 70°
B) Angle $a$ equals 120°
C) Angle $b = 130° - c$
D) Angles $a + b + c = 180°$
Question 5

How many miles would Lukas travel in 9 hours if he continued driving at the same speed?

A) 400 miles  
B) 500 miles  
C) 600 miles  
D) 700 miles  
E) None of these
Which of the following statements are true about random sampling?

(A) Every individual or object has an equal and independent chance of being selected for the sample.

(B) The sample is selected using some chance process.

(C) The results of random sampling tend to produce samples that are representative of the population.

(D) All of the above statements are true about random sampling.

(E) None of the above statements are true about random sampling.
The partially completed bar graph shows the surface areas of all the countries in North America except the United States. The total surface area of the five countries or countries is 9,750,000 square miles. If the bar representing the surface area, in millions of square miles, of the United States is drawn, it should end at approximately

A) 3.5 million  
B) 4 million  
C) 3.25 million  
D) 3.75 million  
E) 4.75 million
With the equation written here, choose which answer explains the math operations being used:

\[
\frac{4x+5}{3}
\]

A: four more than five times a number divided by three

B: five more than four times a number, all divided by three

C: four times a number plus five-thirds

D: five more than four-thirds times a number
Question 9

What is 8% of 250?

A) 2000
B) 2
C) 200
D) 20
E) .2
A gardener had to preserve all the extra peppers, cucumbers, carrots and other vegetables that she decided to plant. She had a plentiful harvest. She decided to can them in jars for the winter. The gardener kept the jars on the shelves in her apocalypse preparedness closet. If a shelf can hold 6 jars from front to back and 10 jars from left to right, and the gardener had 300 jars, how many shelves will she need?

A.) 60  
B.) 30  
C.) 5  
D.) 4  
E.) 2
Heather wants to make some carrot walnut muffins. She has a recipe for one dozen. She wants to make 3 ½ dozen muffins. The recipe calls for ¾ cup of skim milk and 1 ½ cup of grated carrots for one dozen. How many cups of skim milk does she need for 3 ½ dozen muffins?

A. 3 ½
B. 2 5/8
C. 5 ¾
D. 3 2/3
E. 3 2/8
The scatterplot below suggests a trend between variables x and y. Which of the following best describes this trend?

A. As x increases, y decreases.
B. As x decreases, y increases.
C. As x increases, y increases.
D. As x increases, y remains the same.
E. There is no trend.
The pictograph shows the amount of trees planted each day. How many trees were planted Monday, Tuesday, and Thursday combined?

A. 160 trees  
B. 155 trees  
C. 175 trees  
D. 180 trees  
E. 200 trees
Julia and David both have gardens in their backyards. David argues that his garden is bigger than Julia’s because David’s garden is 12 feet by 16.5 feet and Julia’s garden is 4 yards by 6 yards. Who has the bigger garden?

A) David

B) Julia
The two rectangular prisms below have the same volume. Find the value of \( x \).

A) 10  
B) 15  
C) 20  
D) 25  
E) 30
What is the approximate value of \( \sqrt{65} \)?

A) 8.1
B) 8.5
C) 8.9
D) 9.2
E) 9.5
As part of a study done by a zoo. The zoo documented the weight of a baby elephant for 25 weeks and plotted the data in a scatterplot shown. Based on the scatterplot, which of the following statements is true?

A) There is no correlation between age of the elephant and the weight
B) There is a positive exponential correlation between the age of the elephant and the weight
C) There is a negative exponential correlation between the age of the elephant and the weight
D) There is a negative linear correlation between the age of the elephant and the weight
E) There is a positive linear correlation between the age of the elephant and the weight
You decide to take a trip, you are flying from one time zone to another: right now where you are at which is City A it is currently 9:00 AM. You decide to take a flight that is 7 hours and when you land in City B, at City B it is 9:00 PM. If it is 7:00 am in City A, what time is it in City B?

A: 11:00 AM
B: 6:00 AM
C: 12:00 PM
D: 5:00 PM
Question 19

Based on the chart to the right, find the constant of proportionality (p), in the equation \( y=px \).

A) 4
B) 5
C) 5.5
D) 6
E) 6.5
At his high school, 90% is the minimum grade for an "A." Pedro has previous grades of 85, 86, 75, 98, 99, 96. What is the lowest grade, to the nearest whole number, Pedro can get on his final to receive an "A" for the semester?

Grade: 60
A cylinder with radius 3 units is shown below. Its volume is 86 cubic units. What is the height of the cylinder?

(The volume $V$ of a cylinder with radius $r$ and height $h$ is $V = \pi r^2 h$)

Use 3.14 for $\pi$.

A. 3.04 units
B. 4.56 units
C. 9.13 units
D. 5.76 units
E. 7.84 units
The circular region is divided into five sectors. Four of the sectors are labeled with the decimal of the area of the circular region they represent. What fraction of the area of the circular region is missing?

A. 3/50
B. 1/25
C. 1/60
D. 1/50
Randy buys books from the school bookstore. The total amount of cost can be represented by the equation 1.60H+1.15S. With H being hard cover and S is soft cover books, what term represents total cost of hard cover books bought?

A. 1.60
B. H
C. 1.15S
D. 1.60H
E. 1.60H+1.15S
There were 5 students who were picking up trash. While cleaning up, they each found some coins. Below are listed the number of coins each student found. Using that information, what can you estimate the average number of coins (to the nearest tenth) that might be found when students pick up garbage?

A) 4  
B) 3.2  
C) 3  
D) 2.8
On the number line, what value is exactly halfway between $-\frac{1}{2}$ and $\frac{7}{8}$?

A) $\frac{3}{8}$
B) $\frac{3}{16}$
C) $\frac{11}{16}$
D) $\frac{11}{8}$
Question 26

Using the given point $(1,2)$ on the graph, what is the equation of this straight line in Point-Slope Form?

A) $y = 3x - 1$
B) $y - 2 = \frac{1}{3}(x - 1)$
C) $y - 2 = 3(x - 1)$
D) $y - 1 = 3(x - 2)$
E) None of the answers are correct
<table>
<thead>
<tr>
<th>Age</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>7</td>
</tr>
<tr>
<td>19</td>
<td>3</td>
</tr>
<tr>
<td>20</td>
<td>2</td>
</tr>
<tr>
<td>21</td>
<td>3</td>
</tr>
</tbody>
</table>

The distribution of ages of 15 college basketball players on a team is shown in the table above. If one of the players is to be randomly selected from the 18- and 21-year olds on the team, what is the probability that a 21 year old was selected?

A) 1/4  
B) 2/7  
C) 2/3  
D) 3/7  
E) 3/10
Bob is going to a jewelry store and there are no price tags. But he knows that a ruby gem is worth 3 sapphire gems and an emerald gem is worth 5 ruby gems. How many sapphire gems are worth an emerald gem?

A: 1/15  
B: 3/5  
C: 15  
D: 5/3
Bertha is a saleswoman, she is paid $50 per week plus $3 per sale. This week she wants her pay to be at least $100. At least how many sales does she have to make to reach her goal?

A) 2
B) 17
C) 16
D) 12
E) 5
Question 30

Which one of the following histograms represents the data in the table below?

<table>
<thead>
<tr>
<th>Interval</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-8</td>
<td>8</td>
</tr>
<tr>
<td>9-13</td>
<td>3</td>
</tr>
<tr>
<td>14-18</td>
<td>10</td>
</tr>
<tr>
<td>19-23</td>
<td>5</td>
</tr>
</tbody>
</table>

A)  

![Histogram A](image)

B)  

![Histogram B](image)

C)  

![Histogram C](image)

D)  

![Histogram D](image)
Which of the following fractions is least?

A. $\frac{5}{12}$
B. $\frac{3}{4}$
C. $\frac{2}{3}$
D. $\frac{4}{7}$
E. $\frac{5}{9}$
What is the correct order of order of operations?

A. Parentheses, Exponents, Multiplication and Division (from right to left), and then Addition and Subtraction (from right to left)

B. Parentheses, Exponents, Multiplication and Division (from left to right), and then Addition and Subtraction (from left to right)

C. Multiplication and Division (from left to right), Parentheses, Addition and Subtraction (from left to right), and then Exponents

D. Exponents, Parentheses, Addition and Subtraction (left to right), and then Multiplication and Division (from left to right)
Looking at a map, \( \frac{1}{4} \) inch represents 3 actual miles. If the distance between two friends is 3 inches, how far away are they from each other?

A. 12  
B. 30  
C. 36  
D. 9  
E. 3
The cafeteria director at Valley City High School wants to know what percent of the students would choose vegetarian entrees if they were available. Which of the following survey methods will allow the director to make a valid conclusion about the percentage of students who would choose vegetarian entrees?

A) Survey the first 50 students that walk into the lunchroom.

B) Survey 50 7th grade students.

C) Survey 50 random students from a list including grades 7-12.

D) Survey the first 50 girls in the lunchroom.
Kristin spent $131 on shirts. Fancy shirts cost $28 and plain shirts cost $15. If she bought a total of 7 then how many of each kind did she buy?

Number of Fancy Shirts = _____
Number of Plain Shirts = _____
When this 'L'-shape is rotated about the origin (0,0) by 90 degrees anticlockwise (counterclockwise), which one of these would it look like?

A) A  
B) B  
C) C  
D) D  
E) none of above
A bag contains 100 solid colored marbles, of which 30 are blue and the rest are either orange or black. If one marble is to be selected at random from the bag, the probability that the marble selected will be orange is 3/10. How many black colored marbles are in the bag?

A. 60  
B. 40  
C. 50  
D. 20  
E. 35
If $2x^2 + \frac{5}{2}y = 28$ and $x = 3$, what is the value of $y$?
Tina is making punch for her family reunion that is made from pomegranate, grape, and orange juice. It is made with the following parts:
1/2 orange juice
3/8 pomegranate juice
1/8 grape juice

If Tina uses 3 gallons of orange juice to make her punch, how many gallons of pomegranate and grape juice does she use?

A) Tina uses 3/8 gallons of pomegranate juice and 1/8 gallons of grape juice.
B) Tina uses 3/4 gallons of pomegranate juice and 9/4 gallons of grape juice.
C) Tina uses 2 gallons of pomegranate juice and 1 gallon of grape juice.
D) Tina uses 3/2 gallons of pomegranate juice and 1/2 gallons of grape juice.
E) Tina uses 9/4 gallons of pomegranate juice and 3/4 gallons of grape juice.
The resting pulse rate was recorded for 16 boys in gym class before they exercised. The dot plot here shows the results.

What is the median of the pulse rates?
The table shown below gives the approximate distance from the sun for five different planets. How much farther in km from the sun is Saturn than Venus?

<table>
<thead>
<tr>
<th>Planet</th>
<th>Approximate distance from the Sun (in km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mercury</td>
<td>$5.8 \times 10^7$</td>
</tr>
<tr>
<td>Venus</td>
<td>$1.1 \times 10^8$</td>
</tr>
<tr>
<td>Earth</td>
<td>$1.5 \times 10^8$</td>
</tr>
<tr>
<td>Saturn</td>
<td>$1.4 \times 10^9$</td>
</tr>
<tr>
<td>Uranus</td>
<td>$3 \times 10^9$</td>
</tr>
</tbody>
</table>

A. $1.29 \times 10^9$ km  
B. $1.3 \times 10^8$ km  
C. $1.3 \times 10^1$ km  
D. $3.0 \times 10^8$ km  
E. $9.6 \times 10^8$ km
Sam has 26 coins in her pocket, some are quarters, and some are nickels. The coins have a total value of $4.30. How many of each type of coins does she have?

A. $Q = 11, N = 15$
B. $Q = 10, N = 16$
C. $Q = 14, N = 12$
D. $Q = 15, N = 11$
A triangle has lengths that measure 20 and 12. Which of the following could be the length of the third side?

A. 7  
B. 35  
C. 50  
D. 22  
E. 1
A penny is about 1/16 of an inch thick. The distance from the moon to the earth is about 239,000 miles. How many pennies would need to be in a stack in order to reach the moon?

A) 3,824,000 pennies

B) 242,289,000,000 pennies

C) 14,938 pennies

D) 946,4400,000 pennies
Which is the value of x?

A) 6
B) 8
C) 10
D) 14
E) 16
Jerry recorded the temperature in his room (in Degrees Fahrenheit) every two hours over a 12 hour period from noon to midnight. The results are shown in the line graph.

What was the approximate temperature in Jerry's room at 9 p.m.?
There are a total of 110 chickens and goats on a farm. There are more goats than chickens at the farm. What additional information is needed to determine the number of chicken and goats?

Select all the statements that would enable a person to calculate the number of chickens and goats.

A. Knowing the number of goats
B. Knowing how many more goats there are than chickens.
C. Knowing what percentage of the total are chickens
D. Knowing the ratio of chickens to goats
E. All the statements above would provide enough information to determine the number of chickens and goats.
You decide to start a new Cell Phone plan. Initially the phone costs you $100 and your monthly payment is $35 in order to keep texting, calling, and internet. Which of the following represents the total money spent after $x$-months?

A: $100x + 35$

B: $100 + 35x$

C: $135x$

D: $100 - 35x$
The graph at the right shows gas prices during specific years. What is the percent change from 2009 to 2016?

A) 25% increase  
B) 75% increase  
C) 15% increase  
D) 25% decrease  
E) 75% decrease
Which of the following equations expresses the relationship between $x$ and $y$ in the table above?

(A) $y = x + 5$
(B) $y = x + 6$
(C) $y = 3x + 5$
(D) $y = 4x - 1$
(E) $y = 4x - 5$
Francisco is making an effort to drink more water, and has set a goal of 2 liters per day. He wants to know the volume of the water bottle he takes to school each day. The water bottle has a radius of 6 cm and height of 20 cm. What is the volume of Francisco's water bottle?

(The volume of a cylinder is \( V = \pi r^2 h \).)

A. \( 720\pi \) cm cubed  
B. \( 320\pi \) cm cubed  
C. \( 120\pi \) cm cubed  
D. \( 80\pi \) cm cubed  
E. None of the above
Question 52

The local ice cream shop keeps track of how much ice cream they sell versus the noon temperature on that day. The figure displays the shops sales and temperatures for a 12-day time frame. Based on the relationship, which of the following is the best estimate for the increase in ice cream sales in relationship to the increase of the noon temperature?

A. $400 per degree of temperature increase
B. $300 per degree of temperature increase
C. $ 30 per degree of temperature increase
D. $ 20 per degree of temperature increase
A pigeon was sitting 12 meters from the base of a telephone pole and flew 15 meters to reach the top of the pole. How tall is the telephone pole?

A) 9
B) 4
C) 10
D) 5
E) 20
Dustin has 38 Xbox games. Brandon has 12 less Xbox games than Dustin. If Claire has only a quarter of Dustin and Brandon's games combined, how many games does Claire have?

A) 25 games
B) 7 games
C) 13 games
D) 16 games
Kevin baked an apple pie. The radius of the pie was 6 inches. If he ate a quarter of the pie, what is the approximate perimeter of the remaining pie in inches?

A) 28.27 inches  
B) 37.70 inches  
C) 40.27 inches  
D) 49.70 inches  
E) 94.82 inches
Choose answer that has the fractions in the order from smallest to largest.

A) \( \frac{1}{2}, \frac{2}{3}, \frac{1}{4}, \frac{3}{4}, \frac{2}{5} \)

B) \( \frac{1}{4}, \frac{2}{5}, \frac{1}{2}, \frac{2}{3}, \frac{3}{4} \)

C) \( \frac{1}{4}, \frac{2}{5}, \frac{2}{3}, \frac{1}{2}, \frac{3}{4} \)

D) \( \frac{1}{2}, \frac{1}{4}, \frac{2}{3}, \frac{3}{4}, \frac{2}{3} \)

E) No correct answer above