High School
AIMS-Math
Arizona\'s Instrument to Measure Standards Math

Latest Version: 6.0

Question: 1

Sally has two bags of marbles of different colors. The first bag has 5 red, 5 blue, and 5 yellow. The second bag has 2 red, 3 blue, and 4 yellow. If Sally draws one marble from each of the bags without looking, what is the probability that she draws a yellow marble from the first bag and a red marble from the second bag?

A. 5/9
B. 7/24
C. 2/27
D. 5/276

Answer: C

Explanation:
If A and B are independent events -- i.e. if the outcome of A does not affect the outcome of B -- P(A and B) = P(A) * P(B) (multiplication rule)
(P(A) = the probability that event A will occur)
Let
A = drawing a yellow marble from the first bag
B = drawing a red marble from the second bag
P(A) = # yellow marbles in first bag / total # marbles in first bag = 5/(5+5+5) = 5/15 = 1/3
P(B) = # red marbles in second bag / total # marbles in second bag = 2/(2+3+4) = 2/9
P(A and B) = 1/3 * 2/9 = 2/27

Question: 2

The solution to the following system of linear equations is represented by which point?
2x + y = 22
6x - y = 2

A. (3, 16)
B. (16, 3)
C. (-3, 16)
D. (-16, -3)

Answer: A

Explanation:
Solve the system of linear equations for x and y:
2x + y = 22 (Equation 1)
6x - y = 2 (Equation 2)

Method 1
Isolate y in Equation 2 to find y in terms of x (you could also use Equation 1 if you chose).
6x - y = 2
6x - 2 = y
Substitute for y in Equation 1:
2x + y = 22
2x + (6x - 2) = 22
8x - 2 = 22
8x = 24
x = 3
Substitute x = 3 into one of the equations, e.g. Equation 1.
2x + y = 22
2 * 3 + y = 22
6 + y = 22
y = 16
The convention for denoting points as ordered pairs is to to write them as (x, y). Therefore, the point corresponding to the solution for this system of linear equations is
(3, 16).
Method 2
Add the two equations together:
2x + y = 22
+(6x - y = 2)
8x = 24
x = 3
Substitute x = 3 into one of the equations, e.g. Equation 1.
2x + y = 22
2 * 3 + y = 22
6 + y = 22
y = 16
Therefore, the point corresponding to the solution for this system of linear equations is (3, 16).

Question: 3

Chaleesa wants to reflect a one-to-one function, y = f(x), over the line y = x. Which of the following should she do?

A. multiply f(x) by y/x
B. find the reciprocal of f(x)
C. Switch the x and y variables, then find x = f(y)
D. none of the above

Answer: C

Explanation:
A function y = f(x), reflected over the line y = x is the inverse of the function (written as f -1(x)).

To find the inverse of the function, switch the x and y variables and solve for y. This is the same as solving for x as a function of y, and switching the x and y variables. (Since the function is one-to-one, x is a function of y AND y is a function of x.

Question: 4

Alice weighs four bags of apples on a scale that measures to the nearest kg. Her results are as follows:
bag 1: 2 kg
bag 2: 1 kg
bag 3: 3 kg
bag 4: 2 kg
Which of the following is not a possible readout of the scale if all four bags are put on at the same time?

A. 6 kg
B. 8 kg
C. 9 kg
D. 11 kg

Answer: D

Explanation:
Since the scale measures to the nearest 1 kg, the results are accurate ± 0.5 kg.
Let w = weight.
bag 1: $1.5 \text{ kg} \le w < 2.5 \text{ kg}$ ($w < 2.5$ kg rather than $w \le 2.5$ kg because $w = 2.5$ kg would round up to 3 kg)
bag 2: $0.5 \text{ kg} \le w < 1.5 \text{ kg}$
bag 3: $2.5 \text{ kg} \le w < 3.5 \text{ kg}$
bag 4: $1.5 \text{ kg} \le w < 2.5 \text{ kg}$
To find the range of the total weight of all three bags, add the minimum weights to find the total minimum, and the maximum weights to find the total maximum.
$(1.5 + 0.5 + 2.5 + 1.5) \text{ kg} \le w < (2.5 + 1.5 + 3.5 + 2.5) \text{ kg}$
$6 \text{ kg} \le w < 10 \text{ kg}$
Since the total weight will be less than 10 kg, the readout when all four bags are placed on the scale cannot be 11 kg.

Question: 5

Mrs. Krantz is baking peach pies for the fair with an equal number of peaches in each pie. The table above shows the number of peaches that she needs for different numbers of pies. How many peaches does Mrs. Krantz need for 6 pies?

Number of Pies	4	5	6	7	8
Number of Peaches	32	40		56	64

A. 48
B. 50
C. 52

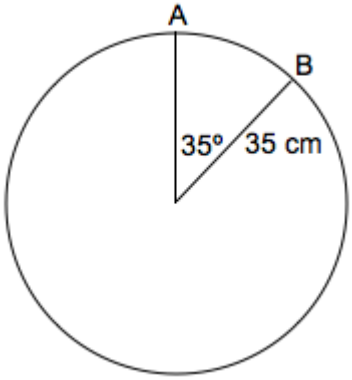
D. 44

Answer: A

Explanation:
The table indicates that each pie requires 8 peaches, so for 6 pies, Mrs. Krantz would need 48 peaches.

Question: 6

The circle shown above (not necessarily drawn to scale) has radius 35 cm and a central angle measuring 35º. What is the measure of (minor) arc AB?



A. 10.7 cm
B. 21.4 cm
C. 42.8 cm
D. 110 cm

Answer: B

Explanation:
Method 1:
The circumference of the circle is equal to $2\pi r = 2 * \pi * 35$ cm ≈ 219.911 cm
The total number of degrees in one rotation from the center of the circle is 360º.
Therefore, a 35º central angle makes up 35º / 360º ≈ 0.0972 of the circle.
Therefore, the arc makes up 0.097 times the circumference of the circle
= 0.0972 * 219.911 cm
≈ 21.4 cm
Method 2:
If an arc in a circle with radius r measures q radians, the length of the arc is equal to rq.
Convert the degrees to radians: (let x = measure in degrees and θ = measure in radians)
$\theta = \pi * x / 180$
$\theta = \pi * 35 / 180$
$\theta \approx 0.61$
Therefore the length
$= r * \theta$

≈ 35 cm * 0.61
≈ 21.4 cm

Question: 7

Below is a number written in scientific notation. If the number is written in decimal notation, what digit will be in the billions place?
1.234567 * 1015

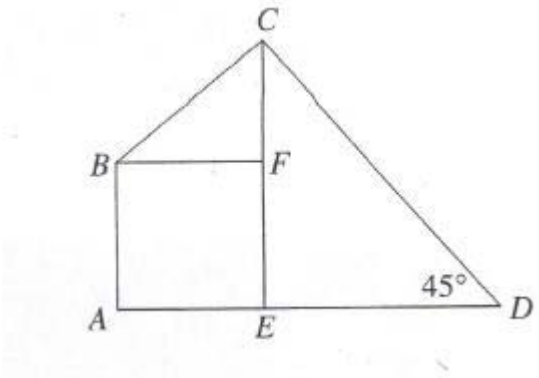
A. 1
B. 5
C. 7
D. 0

Answer: C

Explanation:
To multiply a number by 1015, move the decimal point 15 places to the right, adding zeros as necessary. The billions place is 10 digits to the left of the decimal point. In this case, the digit in the billions place is 7.

Question: 8

In the picture above, square ABFE has an area of 25, triangle BCF has an area of 10. What is the length of CE?



A. 7
B. 8
C. 9
D. 10

Answer: C

Explanation:

The area of the square is 25, therefore each side is equal to √25 or 5. This means the base of triangle BCF is also 5. Knowing that the area of a triangle is equal to one-half the base times height, we have:
1/2 * 5 * height = 10
5/2 * height = 10
height = 10 * 2/5
height = 20/5 = 4
That makes FE = 5 and FC = 4, so CE = 5 + 4 = 9

Question: 9

Find the mean of the following dataset:
x - 5, x + 5, x - 7, x -7, x +7, x + 13

A. x - 1
B. x + 1
C. x + 5
D. x - 7

Answer: B

Explanation:
Mean = sum/n
Here n = 6
Sum = (x - 5) + (x + 5) + (x - 7) + (x -7) + (x +7) + (x + 13) = 6x + 6 = 6(x + 1)
Mean = Sum/6 = 6(x + 1)/6 = (x + 1)

Question: 10

Which of the following can best be described by a linear function?

A. The volume of a cube with side s.
B. The surface area of a sphere with radius r.
C. The perimeter of a rectangle with sides s and s + 2.
D. The area of a circle with radius r.

Answer: C

Explanation:
A linear function has one variable and no power higher than one.
The volume of a cube involves the power of 3, so Choice (A) cannot be correct.
The surface area of a sphere and the area of a circle involve the power of 2, so Choices (B) and (D) cannot be correct.
Perimeter only involves addition or multiplication at the first degree level, so Choice (C) is correct.

Thank You for Trying Our Product

For More Information – Visit link below:

https://www.examsboost.com/

15 USD Discount Coupon Code:

G74JA8UF

FEATURES

- ✓ 90 Days Free Updates
- ✓ Money Back Pass Guarantee
- ✓ Instant Download or Email Attachment
- ✓ 24/7 Live Chat Support
- ✓ PDF file could be used at any Platform
- ✓ 50,000 Happy Customer