Ultimate IT Test Preparation Material

TEACHING
CBASE-Math
CBASE Math Certification Exam

- **Up to Date products, reliable and verified.**
- **Questions and Answers in PDF Format.**

Full Version Features:

- **90 Days Free Updates**
- **30 Days Money Back Guarantee**
- **Instant Download Once Purchased**
- **24 Hours Live Chat Support**

For More Information:

https://www.testsexpert.com/

- **Product Version**

Latest Version: 6.0

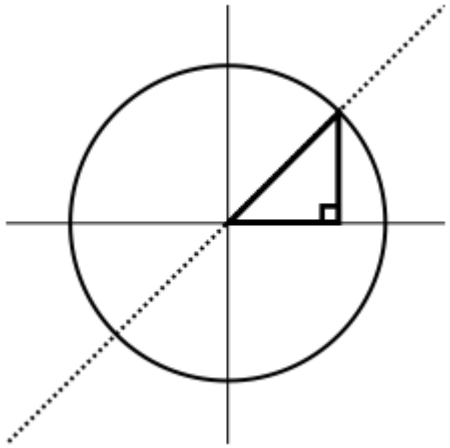
Question: 1

A circle of diameter 8 is centered about the origin in the xy-plane. At what points will it be intersected by the line y = x?

A. (2√2, 2√2)
B. (√2, √2) and (-√2, -√2)
C. (2√2, 2√2) and (-2√2, -2√2)
D. (4√2, 4√2) and (-4√2, -4√2)

Answer: C

Explanation:
We can use the Pythagorean theorem to solve this problem. Any point (x,y) in the xy-plane will form a right triangle with sides |x| and |y|.



The hypotenuse of the triangle will be the distance from the origin to the point.
We know that the distance from the origin to the circle will be equal to the radius of the circle, since the circle is centered at the origin.
The radius of the circle is d / 2 = 8 / 2 = 4
Therefore, the hypotenuse of the triangle has measure 4.
We can now use the hypotenuse to figure out the values of x and y at the points where the line intersects the circle.
The Pythagorean diagram states that for a triangle with sides a and b and hypotenuse c,
$c2 = a2 + b2$
For our triangle,
$42 = x2 + y2$
Since the equation of the line is x = y, we can substitute x for y:
$42 = x2 + x2$
$42 = 2x2$
$16 = 2x2$

8 = x2
x = ±√8 = ±√(4 * 2) = ±2√2

Since y = x, the points at which the line x = y will intersect the circle are (2√2, 2√2) and (-2√2, -2√2).
{12, 15, 34, 24, 10, 11, x}

Question: 2

The mean of the above set of values is 17.
x = ?

A. -1
B. 6
C. 13
D. 17

Answer: C

Explanation:
To find the mean, divide the sum of the values by the number of values. Since we know the mean is 17,
17 = (12 + 15 + 34 + 24 + 10 + 11 + x) / 7
119 = (12 + 15 + 34 + 24 + 10 + 11 + x)
119 = 106 + x
13 = x
In probability, two events are independent if the occurrence of the first event does not influence the probability of the occurrence of the second event.

Question: 3

Which of the following describes two independent events?

A. Drawing two cards from a deck without replacing them
B. Randomly choosing two students from a class to go to the board
C. Rolling two dice
D. Randomly pulling two crayons from a box without replacing them

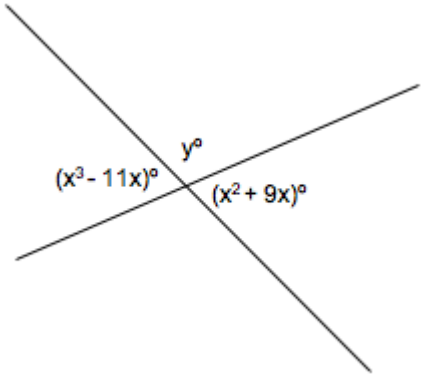
Answer: C

Explanation:
Rolling two dice makes two independent events, because the chances of rolling any particular number with the second die are not affected by the outcome of the first role.
All of the other events pairs described are dependent. Each other answer choice describes choosing two members from the same set without replacement. Therefore, choosing the first member removes one member from the set, and the set has one fewer member from which to choose the second member, thereby changing the probability. (If the set has n members, the probability of choosing any particular

member on the first draw is 1/n, and the probability of choosing any particular member on the second draw is 1/(n-1).)

Question: 4

The image (not necessarily drawn to scale) shows intersecting lines. Find the value of y.



A. 70
B. 110
C. 140
D. 220

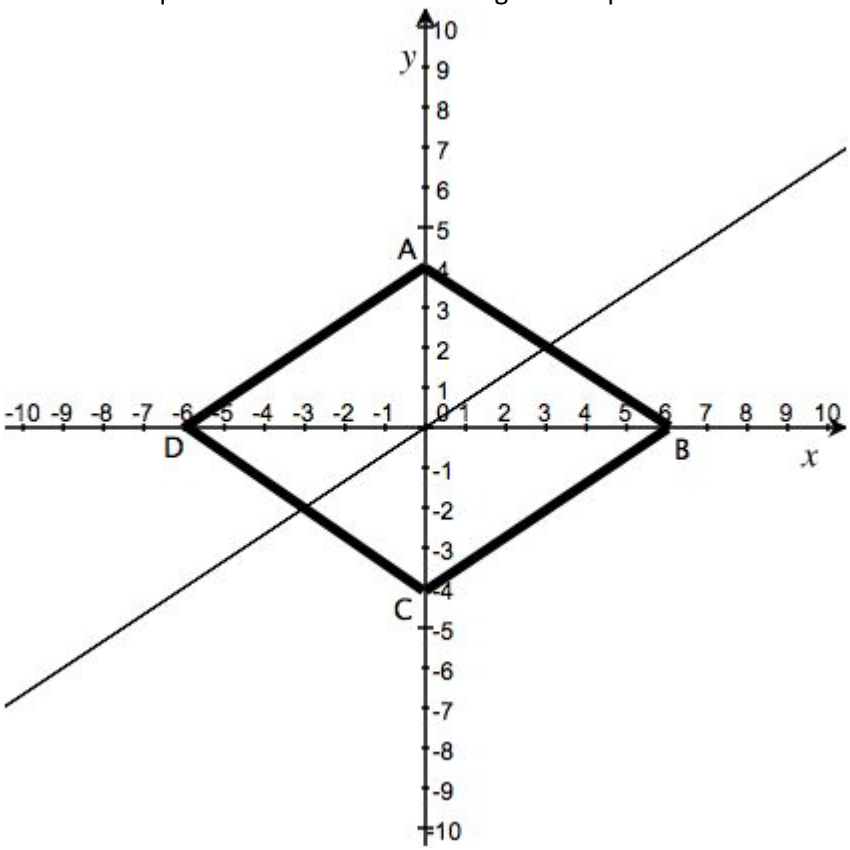
Answer: B

Explanation:
Nonadjacent "vertical" (or "vertically opposite") angles formed by intersecting lines are equal.
Therefore:
x2 + 9x = x3 - 11x
Solve for x:
x2 = x3 - 20x
x3 - x2 - 20x = 0
Factor out an x:
x (x2- x - 20)= 0
Therefore, x = 0 or (x2 - x - 20) = 0
Since x cannot equal zero (or both angles would be equal to zero), (x2 - x - 20) = 0
Solve for x by factoring:
(x-5)(x+4)=0
x = 5 or x = -4
If x = -4, x2 + 9x = -4*-4 + 9*-4 = 16 + (-36) = -20. This is not a possible measure, so the only possible value of x is 5.
Substitute 5 for x:
x2 + 9x
= 52 + 9*5
= 25 + 45
= 70

Therefore, the two angles for which algebraic expressions in x are given each measure 70º. Together, they measure 2 * 70º = 140º.
Since the total measure of all four angles will be 360º, the sum of the other two angles will be 360º - 140º = 220º
Since we know that the other two angles will also be equal, the measure of y will be 220º / 2 = 110º.
(Alternatively, you can notice that (x3 - 11x)º = 70º and yº lie along a straight line, so their sum will be 180º. 180º - 70º = 110º.)

Question: 5

ABCD is a diamond-shaped quadrilateral in the xy-plane with vertices at (0, 4), (6,0), (0, -4), and (-6, 0). What is the equation of the line connecting the midpoints of AB and CD?



A. y = 2/3x
B. y = -3/2x
C. y = 2/3x + 4
D. y = -3/2x - 4

Answer: A

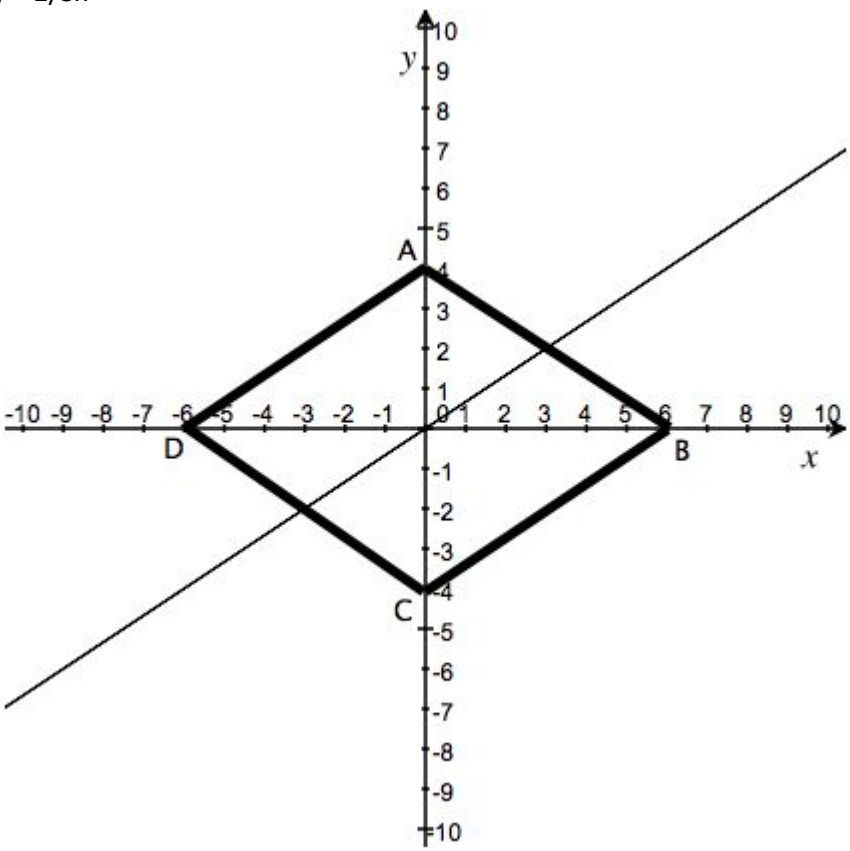
Explanation:
First, calculate the midpoints of AB and CD

$$midpoint = (\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2})$$
$$= (\frac{0+0}{2}, \frac{-4+-5}{2})$$
$$= (\frac{0}{2}, \frac{-9}{2}) = (0, -4.5)$$

Midpoint(AB) = ((0+6)/2, (0+4)/2) = (6/2, 4/2) = (3, 2)
Midpoint(CD) = ((0-6)/2, (-4+0)/2) = (-6/2, -4/2) = (-3, -2)
Now we know two points, and can find the equation of the line, y = mx + b, where m is the slope and b is the y-intercept.

$$slope = \frac{rise}{run} = \frac{y_2 - y_1}{x_2 - x_1}$$
$$slope = \frac{2-(-2)}{3-(-3)} = \frac{4}{6} = \frac{2}{3}$$

m = 2/3
Now substitute in one of the points to find the value of b
y = 2/3x + b
2 = (2/3)*3 + b
2 = 2 + b
b = 0
Therefore, the equation of the line is
y = 2/3x



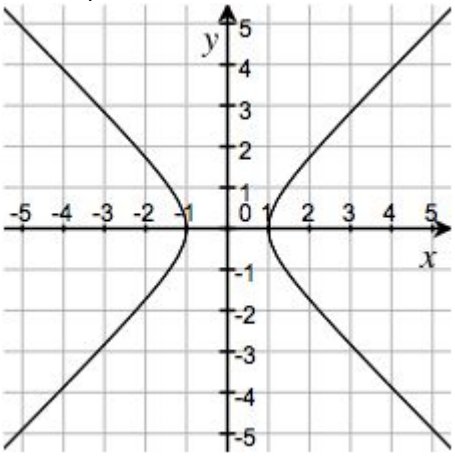
Question: 6

In which of the following is y NOT a function of x?

A. y + 2x = 0
B. y - x2 = 3
C. x2 - y2 = 1
D. y - √3x = -5

Answer: C

Explanation:
A function maps each value of x in the domain to EXACTLY one value of y in the range.
Isolate the y to see if the equations are functions.
y + 2x = 0
y = -2x
Yes - each value of x is mapped to exactly 1 value of y (graph passes the vertical line test)
y - x2 = 3
y = x2 + 3
Yes - each value of x is mapped to exactly 1 value of y (graph passes the vertical line test)
x2 - y2 = 1
y2 = x2 - 1
No - since (-y)2 = y2, each value of x has two corresponding values of y (graph does not pass the vertical line test).



y - √3x = -5
y = √(3x) - 5
Yes - each value of x is mapped to exactly 1 value of y (graph passes the vertical line test)
Mrs. Peabody's class is raising funds by selling friendship bracelets for 25 cents each. As a challenge, a very rich donor has agreed to give an amount equal to the sales proceeds multiplied by themselves. Another rich donor has agreed to contribute an amount equal to four times the sales proceeds.

Question: 7

What is the minimum number of friendship bracelets that the class must sell to reach its fundraising goal of $2250?

A. 45
B. 180
C. 182
D. 9000

Answer: B

Explanation:
This question describes a quadratic equation.
Let x = the sales proceeds.
The first rich donor has agreed to give an amount equal to x * x = x2
(Note: this donor may end up giving huge amounts of money even if the proceeds are relatively small.)
The second rich donor has agreed to give an amount equal to 4 * x = 4x
Altogether, the amount raised will be
x2 + 4x + x = x2 + 5x.
To reach the fundraising goal, the class must raise an amount ≥ $2250. Therefore, we can set up a quadratic inequality:
x2 + 5x ≥ 2250
x2 + 5x - 2250 ≥ 0
Solve using the quadratic formula.

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

[-5 ± √(25 - 4*1*-2250)] / 2
= [-5 ± √(25 + 9000)] / 2
=[-5 ± √(9025)] / 2
= [-5 ± 95] / 2
= 90 / 2 OR -100 / 2
Since the proceeds cannot be negative,
x = 90/2 = 45
Therefore, the class's proceeds must be $45.00.
Since each bracelet costs $0.25 = 1/4 dollar, divide by $0.25 (which is equivalent to multiplying by 4) to find the number of bracelets the class must sell.
$45.00 / $0.25 per bracelet = 180 bracelets
The class must sell at least 180 bracelets to make at least $2250.
Substitute in the values to check:
180 bracelets * $0.25 / bracelet = $45.00 = x
x2 + 5x ≥ 2250
$452 + 5*$45 = 2025 + 225 = $2250

Question: 8

The sum of two numbers equals one of the numbers. Which of the following is a possible way to describe this relationship?

A. x + y = y + x
B. x + y = x
C. 1 = x/y
D. 1/x = y

Answer: B

Explanation:
You are trying to find an equation that represents this relationship: the sum of two numbers equals one of the numbers. If you call the numbers x and y, then the sum of these two numbers would be x + y. If you want to show that this sum equals one of the numbers, you could either say x + y = x or x + y = y.

Question: 9

Express the equation 3x + 16y = 4 in the standard form of the equation of a line, y = mx + b.

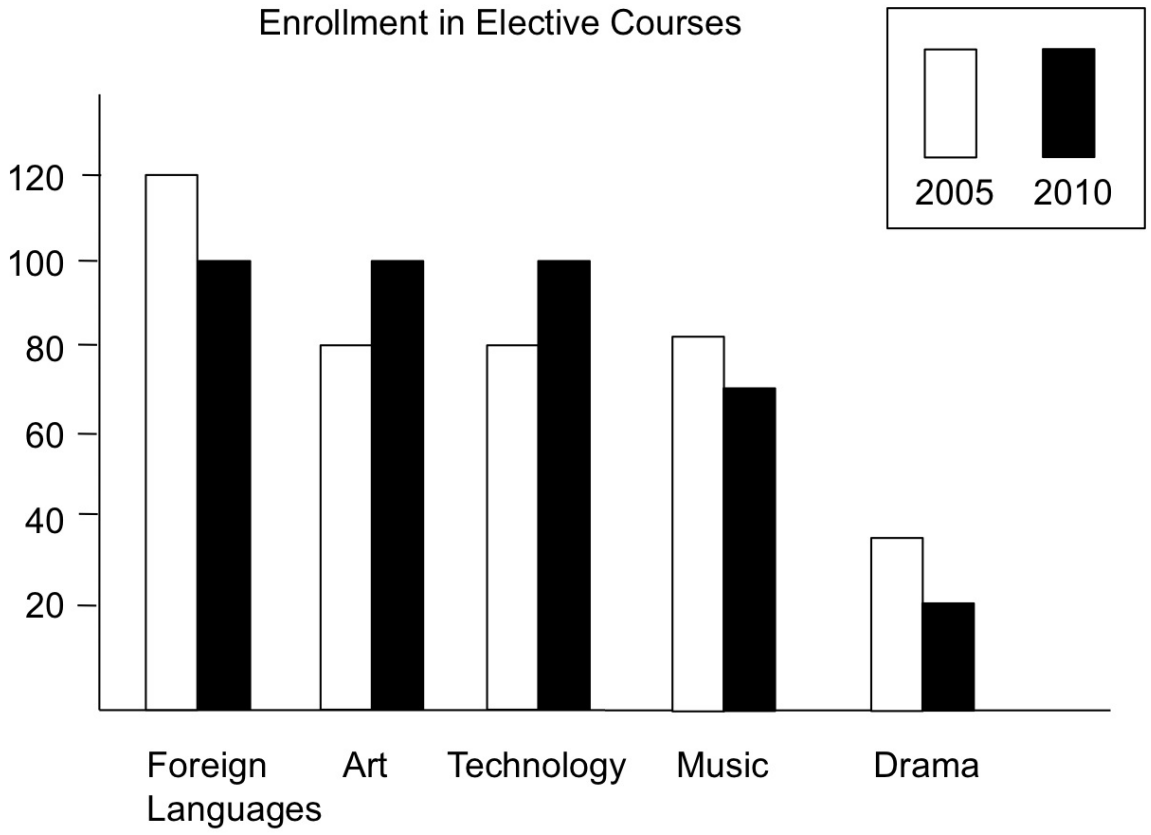
A. y = (3/16)x + 1/4
B. y = -(3/16)x + 1/4
C. 16y = -3x + 4
D. y = -3x + 1/4

Answer: B

Explanation:
Since the standard equation for a line is y = mx + b, we need to isolate the y variable.
3x + 16y = 4
Subtract 3x from both sides:
16y = -3x + 4
Divide both sides by 16:
y = -(3/16)x + 1/4
Note that the equation 16y = -3x + 4 is a correct equation, but it is not in the form y = mx + b

Question: 10

Approximately how many students were enrolled in music courses in 2010?



A. 60
B. 70
C. 85
D. 65

Answer: B

Explanation:
You cannot tell from looking at the chart the exact number of students enrolled in music courses. But the answer that appears closest to the value on the chart is 70.

For More Information – **Visit link below:**

https://www.testsexpert.com/

16$ Discount Coupon: 9M2GK4NW

Features:

- Money Back Guarantee……..……...…. 

- 100% Course Coverage…… 

- 90 Days Free Updates…… 

- Instant Email Delivery after Order……