Exam

Text

Sample00.qiz

This is designed to use the RangerCollege.cst style, develop an exemplary quadratic equation question, and exhibit other types of questions

Write your name and time of exam in this box. For example, enter

John Doe, 12/25/1998 9:00AM

=> [ ]

Setup

Choices:Permute,break,radio buttons

Seed: 5

CstFile: RangerCollege.cst

Print choices: A,B,C,D,E,F

HTTP:http://www.ranger.cc.tx.us/math/quiz/

Question

Setup

$a := \text{rand}(\{2,3,5\})$

$b := 2 \times \text{rand}(2,5)$

$c := \text{rand}(\{-3,-5,-7,-11\})$

Condition: $\sqrt{1.0(b^2-4ac)} > \left\lfloor \sqrt{1.0(b^2-4ac)} \right\rfloor$

Points:6

Comment

The condition insures that the equation has a radical that is not a perfect square and is reducible. If you run Maple directly, it says that $\sqrt{9} > 0$ but it cannot verify that $\sqrt{10} > 0$. Using absolute values doesn't help. This is why we're multiplying by 1.0.

Statement

Solve by using the quadratic formula:

$$ax^2 + bx + c = 0$$

Choices

- $x = -\frac{1}{2a}\left(b - \sqrt{b^2-4ac}\right)$ or $x = -\frac{1}{2a}\left(b + \sqrt{b^2-4ac}\right)$
- $x = \frac{1}{2a}\left(b + \sqrt{b^2-4ac}\right)$ or $x = \frac{1}{2a}\left(b - \sqrt{b^2-4ac}\right)$
- $x = -\frac{1}{a}\left(b - \sqrt{b^2-4ac}\right)$ or $x = -\frac{1}{a}\left(b + \sqrt{b^2-4ac}\right)$
- $x = -\frac{1}{2a}\left(b - \sqrt{b-4ac}\right)$ or $x = -\frac{1}{2a}\left(b + \sqrt{b-4ac}\right)$

fixed item None of these

Question

Setup

$a := \{2, 3, 5, 7, 11, 13, 19, 23, 29, 31, 37, 41, 43, 47\}$

$b := \text{rand}(a)$

$c := \text{rand}(a)$

Conditions: $b \neq c$

Choices:Permute,check,no break

Comment

Note the delayed assignment for b. It will be generated later in the Choices

Statement

Which of the following is prime? You get 2 points for each correct selection. More than one correct selection is possible. You lose 2 points for each **incorrect** selection.

Choices

-2 91

2 b

2 c

-2 $2b$

-2 $3c$

-2 143

Question

Setup

$a := \text{rand}(\{2, 3, 5\})$

$b := 2 \times \text{rand}(2, 5)$

$c := \text{rand}(\{-3, -5, -7, -11\})$

Condition: $\sqrt{1.0(b^2 - 4ac)} > \left\lfloor \sqrt{1.0(b^2 - 4ac)} \right\rfloor$

Points:6

Comment

The condition insures that the equation has a radical that is not a perfect square and is reducible. If you run Maple directly, it says that $\sqrt{9} > 0$ but it cannot verify that $\sqrt{10} > 0$. Using absolute values doesn't help. This is why we're multiplying by 1.0.

Statement

Solve by using the quadratic formula: $ax^2 + bx + c = 0$. Show all work in the space provided below.

Response

TextArea (60,3)

Solution

Let $a = a, b = b, c = c$ and substitute these into the quadratic formula to obtain:

$x = \frac{-(b) \pm \sqrt{(b)^2 - 4(a)(c)}}{2*a}$

Simplifying yields

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

and then

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

Final simplification of the radical produces

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

and division by $2a$ gives

$x = -\frac{1}{2a}\left(b - \sqrt{b^2 - 4ac}\right)$ or $x = -\frac{1}{2a}\left(b + \sqrt{b^2 - 4ac}\right)$

These are the *exact* solutions. Approximations to these solutions are:

$x = -\frac{0.5}{a}\left(b - 1.0\sqrt{b^2 - 4.0ac}\right)$ or $x = -\frac{0.5}{a}\left(b + \sqrt{b^2 - 4.0ac}\right)$

Question

Setup

$a := \text{rand}(-5, 5)$

$b := \text{rand}(-5, 5)$

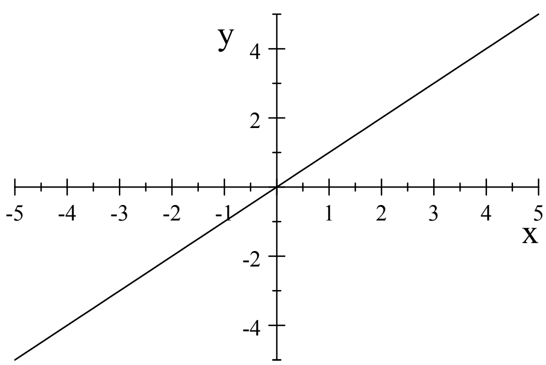
$c := \text{rand}(\{-1, 1\})$

$f := c(x - a)(x - b)$

Conditions:$(ab \neq 0) \wedge (|a - b| > 3)$

Statement

Which of the following functions has this graph?



Choices

- f
- $cx^2 - abc - acx + bcx$
- $acx - abc - cx^2 + bcx$

- $cx^2 - abc + acx - bcx$