QUIZ BOWL

XAVIER UNIVERSITY

2024 MATHEMATICS COMPETITION

Factor

$$x^2 + 3x - 10$$

Solve for x

$$x^2 + 3x - 10$$

$$(x + 5)(x - 2)$$

Give the formula for the surface area of a sphere

$$A = 4\pi r^2$$

Simplify.

$$125^{2/3}$$

Simplify.

$$125^{2/3} = 25$$

Simplify.

$$\frac{7}{12} - \frac{1}{9}$$

Simplify.

$$\frac{7}{12} - \frac{1}{9} = \frac{17}{36}$$

In what base does

$12 + 26 = 41$?

7

How many real solutions?

$$x^2 = -4x - 4$$

How many real solutions?

1

Solve for x.

$$(x-3)^4 = 81$$

Solve for x.

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$$x = 6$$

Solve for the acute angle x.

$$\cos(x) = \frac{1}{\sqrt{2}}$$

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$$x = \frac{\pi}{4} \text{ (or } 45°\text{)}$$

Simplify.

$$\log_3\left(\frac{1}{9}\right)$$

Simplify.

$$\log_3\left(\frac{1}{9}\right)$$

-2

Which is farthest from $(1, -2)$?

$(3, -5)$ $(0, 3)$

$(3, 0)$ $(-5, -5)$

Which is farthest from $(1, -2)$?

$(-5, -5)$

Solve for t.

$$\left(\frac{3}{2}\right)^{t} = \frac{4}{9}$$

Solve for t.

$$\left(\frac{3}{2}\right)^{t} = \frac{4}{9}$$

-2

Find the area of a sector that subtends a 60° angle in a circle of radius 18 in. (Include units)

54π sq. in.

Solve for y.

$$\sqrt{5y+9} = -8$$

Solve for y.

$$\sqrt{5y+9} = -8$$

(no solutions)

If a line is parallel to a vertical line, then it is _____.

If a line is parallel to a vertical line, then it is <u>vertical</u>.

Solve for r.

$$A = Pe^{rt}$$

Solve for r.

$$A = Pe^{rt}$$

$$r = \frac{\ln\left(\frac{A}{P}\right)}{t}$$

END OF ROUND 2