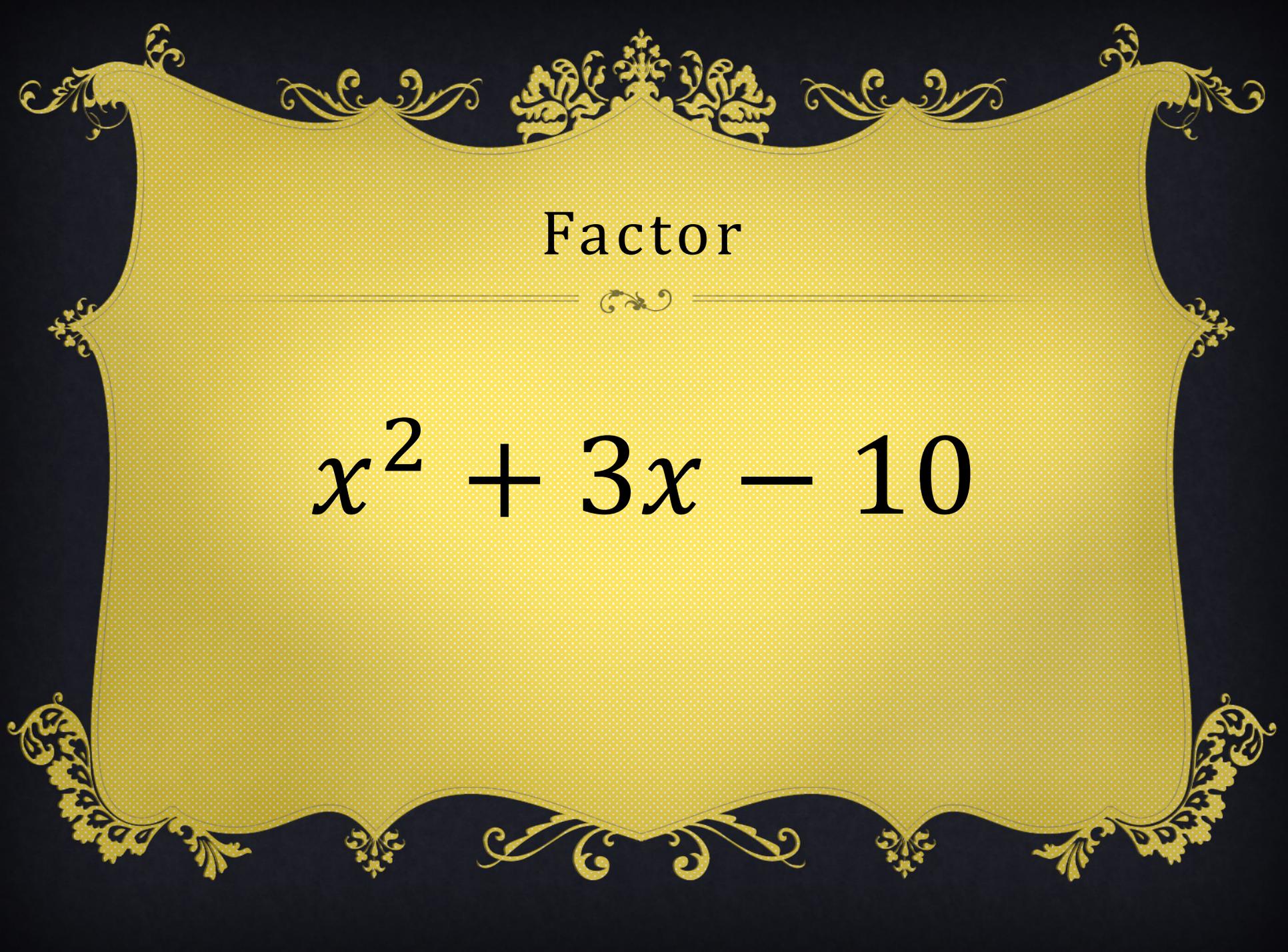




QUIZ BOWL

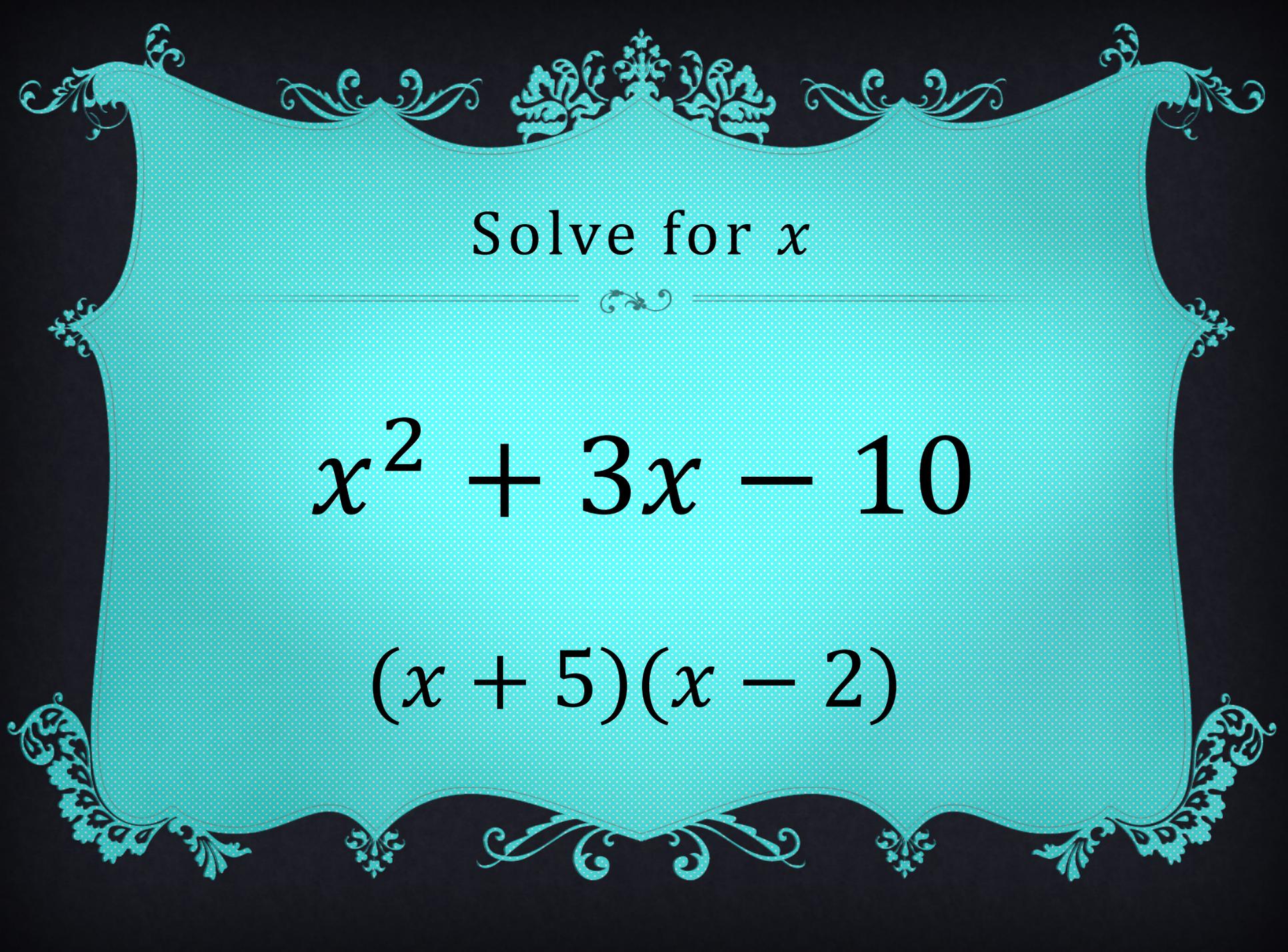
XAVIER UNIVERSITY

2024 MATHEMATICS COMPETITION



Factor

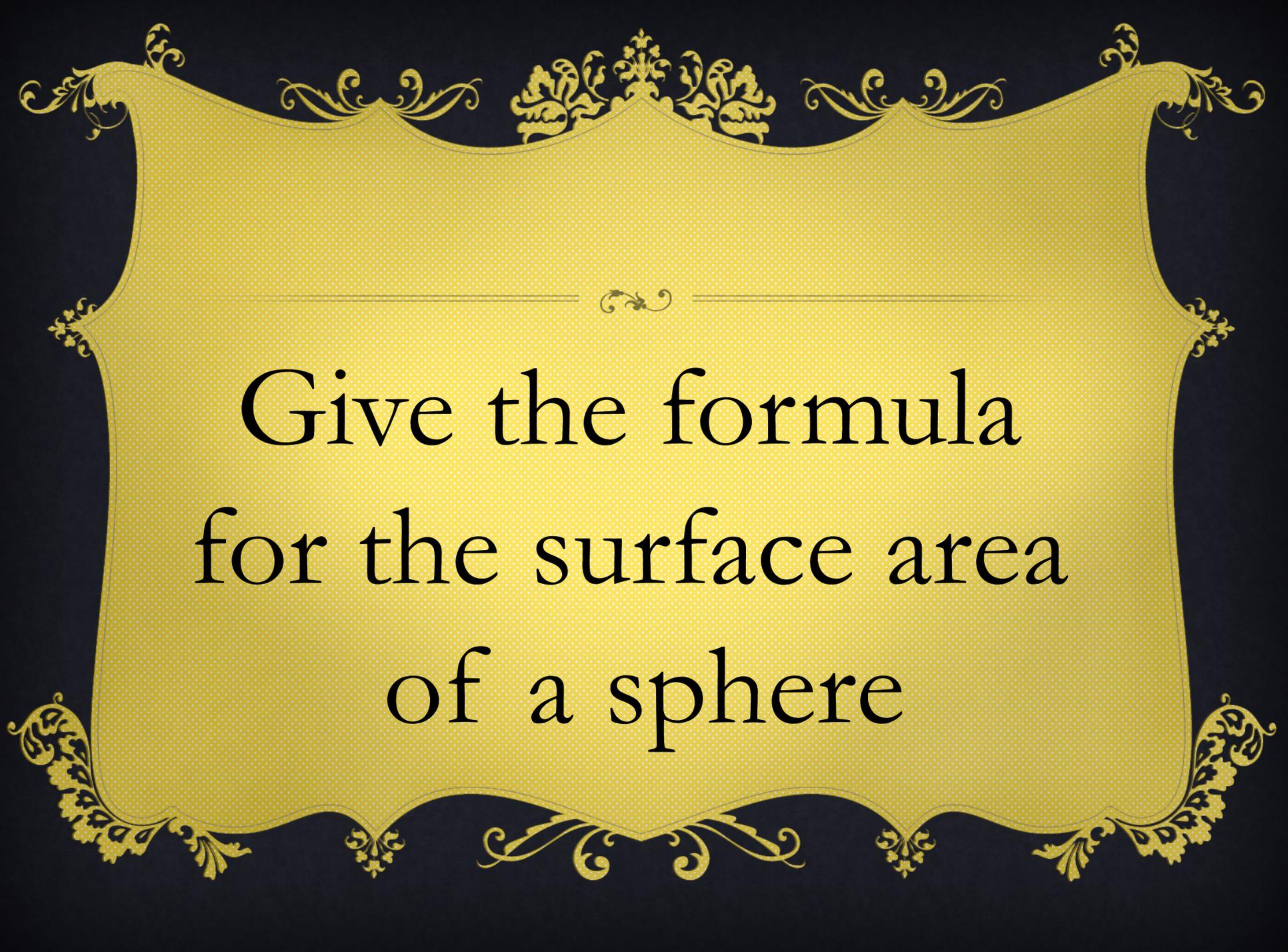
$$x^2 + 3x - 10$$



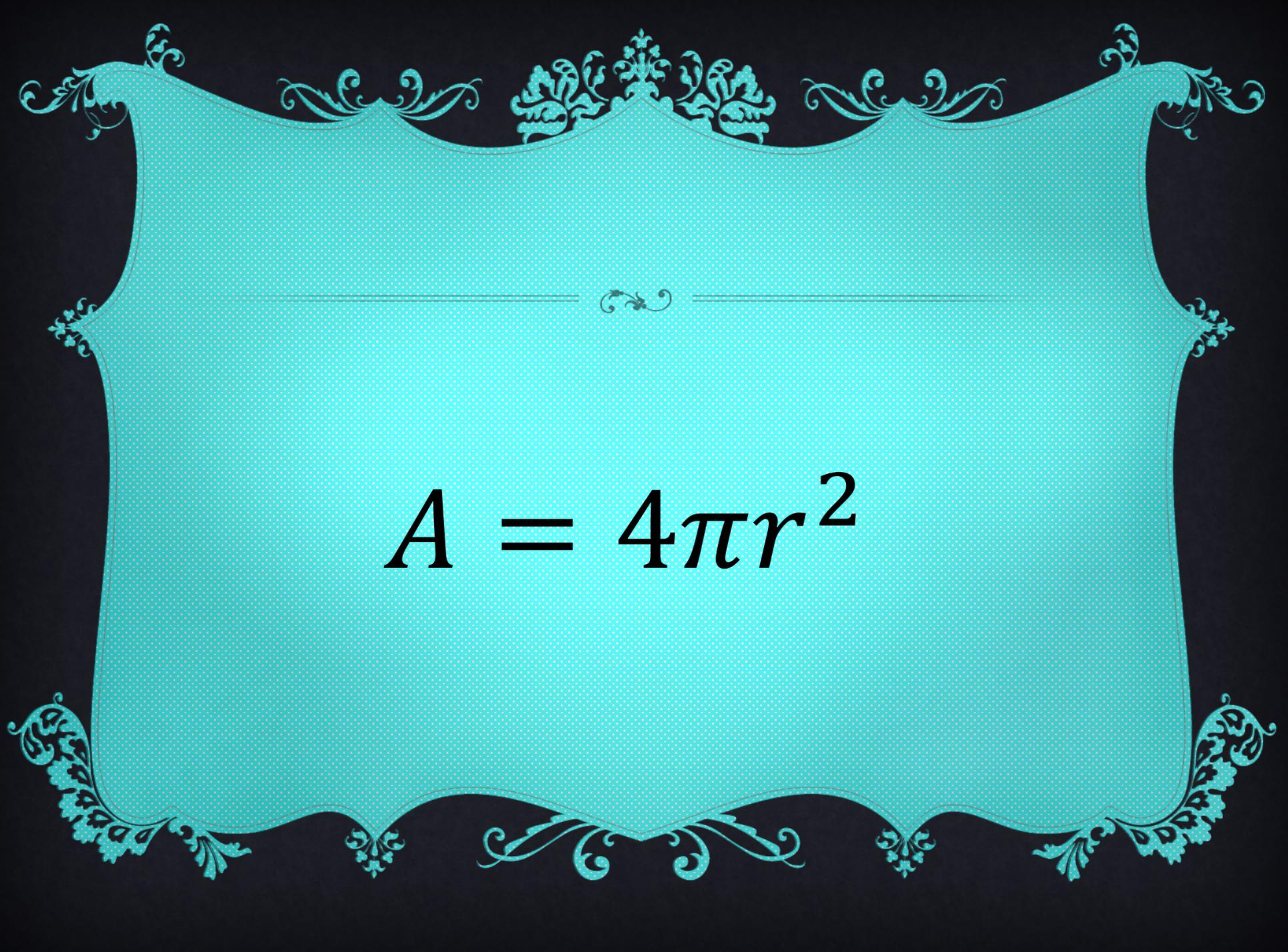
Solve for x

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

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



Give the formula
for the surface area
of a sphere


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



Simplify.

$$125^{2/3}$$

Simplify.

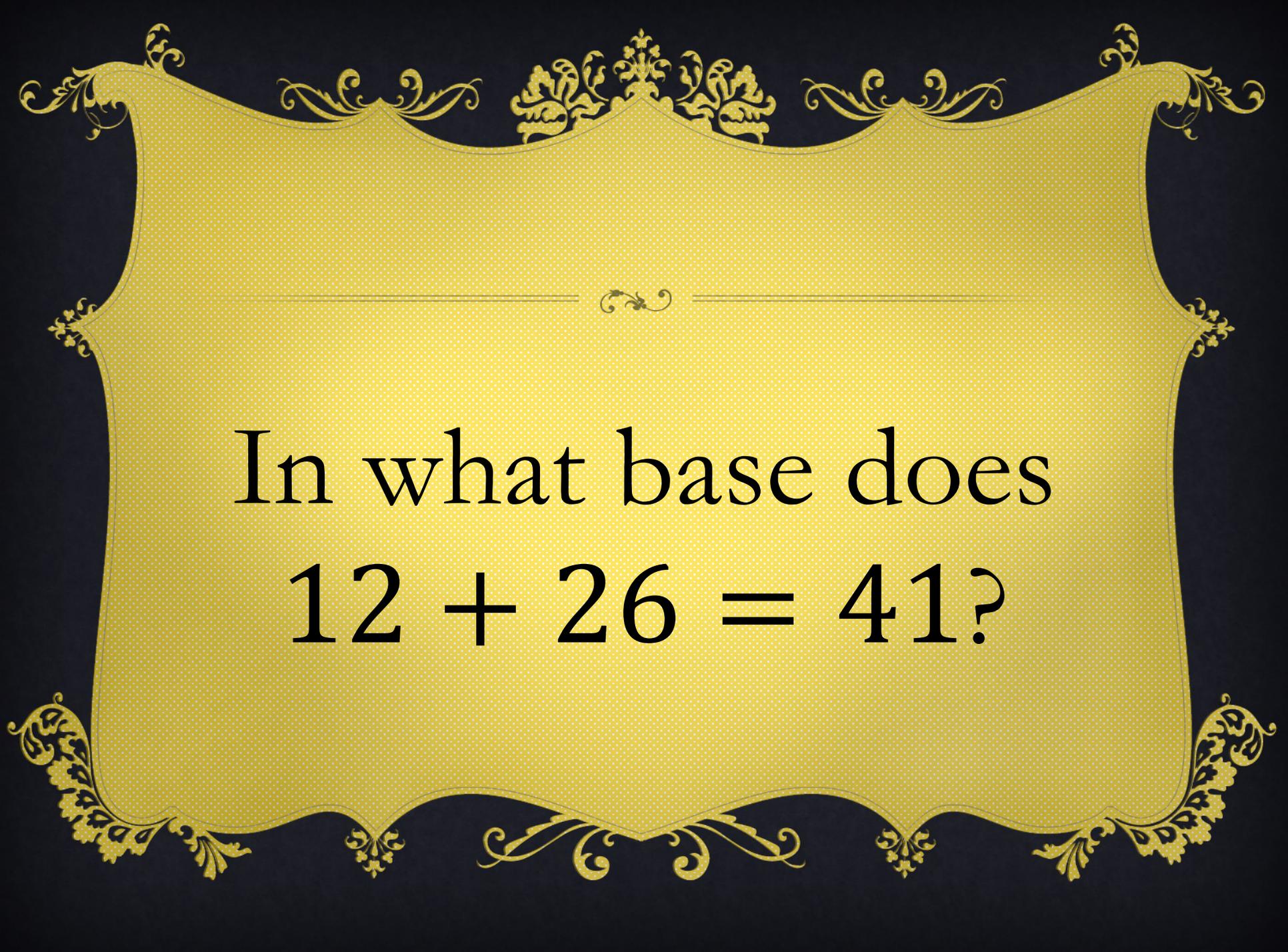
$$125^{2/3} = 25$$

Simplify.

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

Simplify.

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



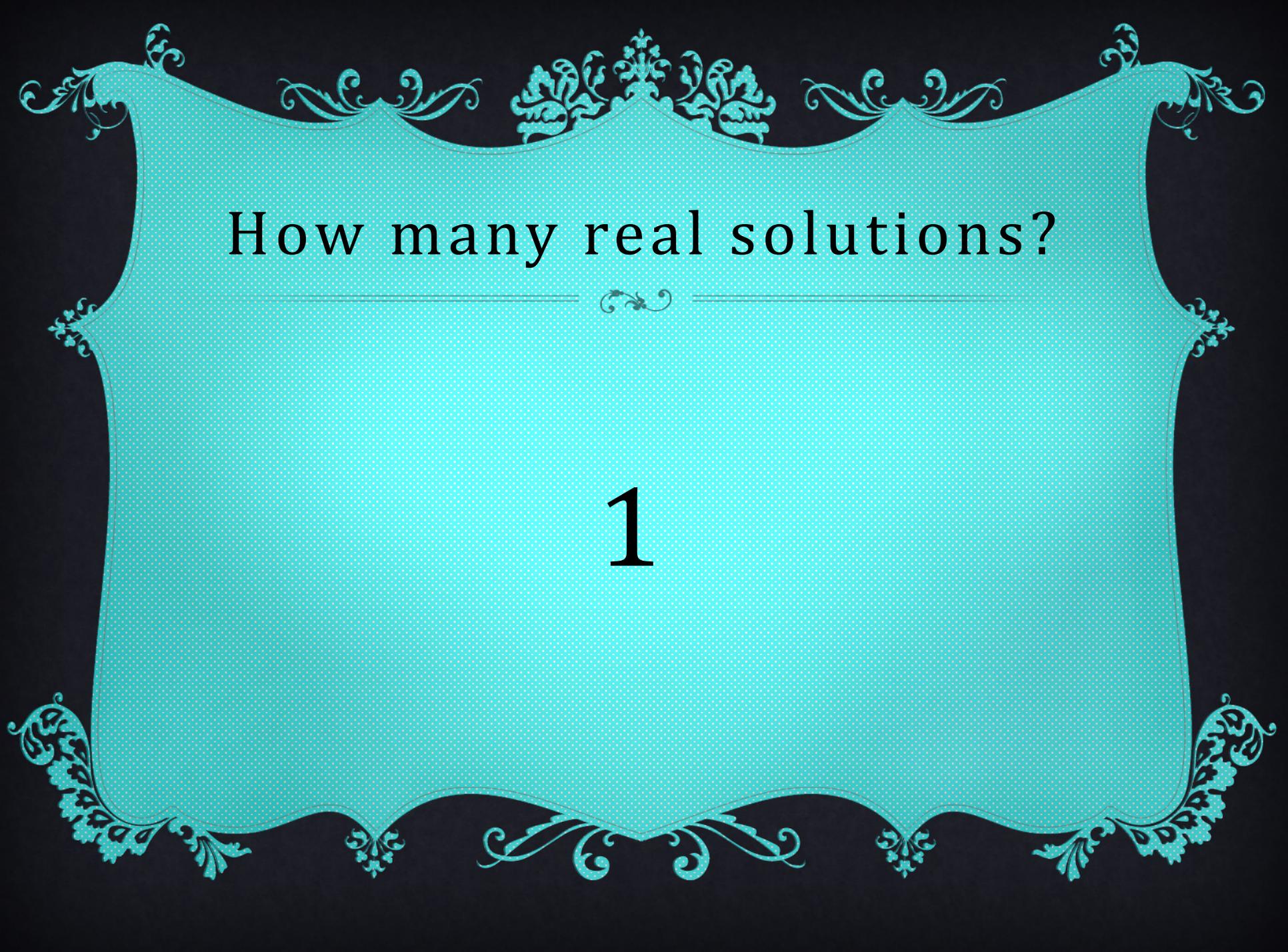
In what base does
 $12 + 26 = 41$?



7

How many real solutions?

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

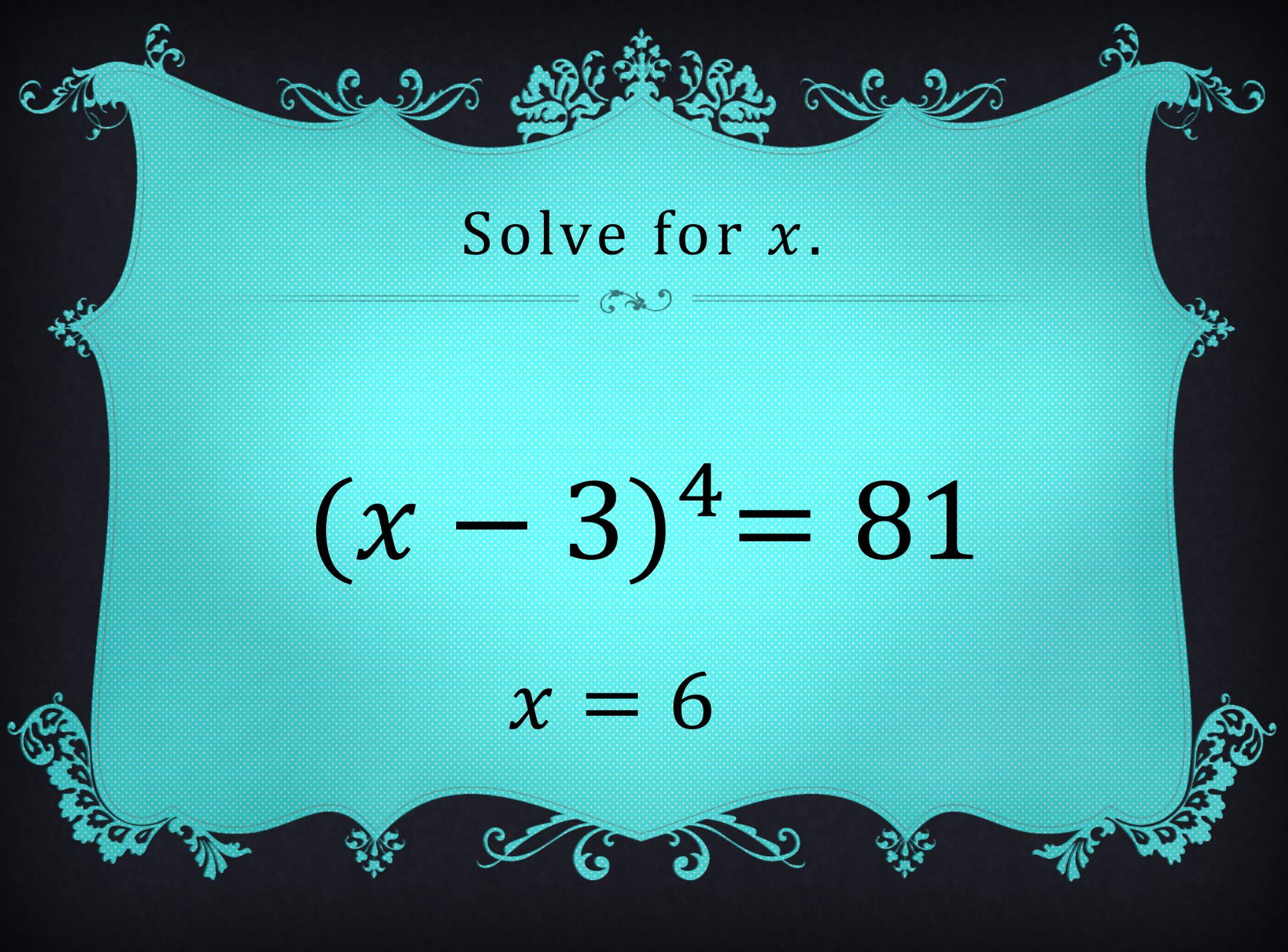


How many real solutions?

1

Solve for x .

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



Solve for x .

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

$$x = 6$$

Solve for the acute angle x .

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

Solve for the acute angle x .

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

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

Simplify.

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

Simplify.

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

-2

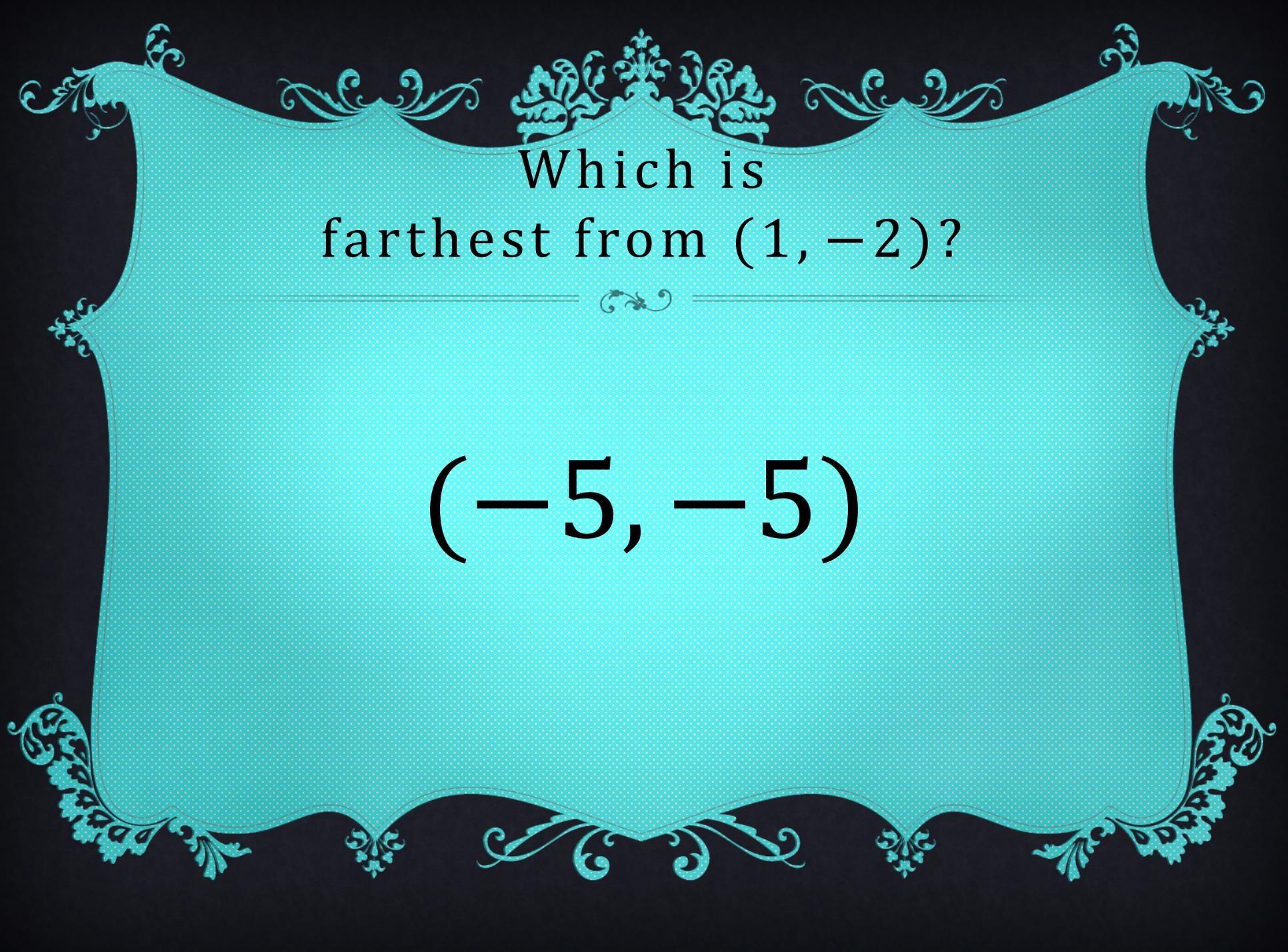
Which is
farthest from $(1, -2)$?

$(3, -5)$

$(0, 3)$

$(3, 0)$

$(-5, -5)$



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

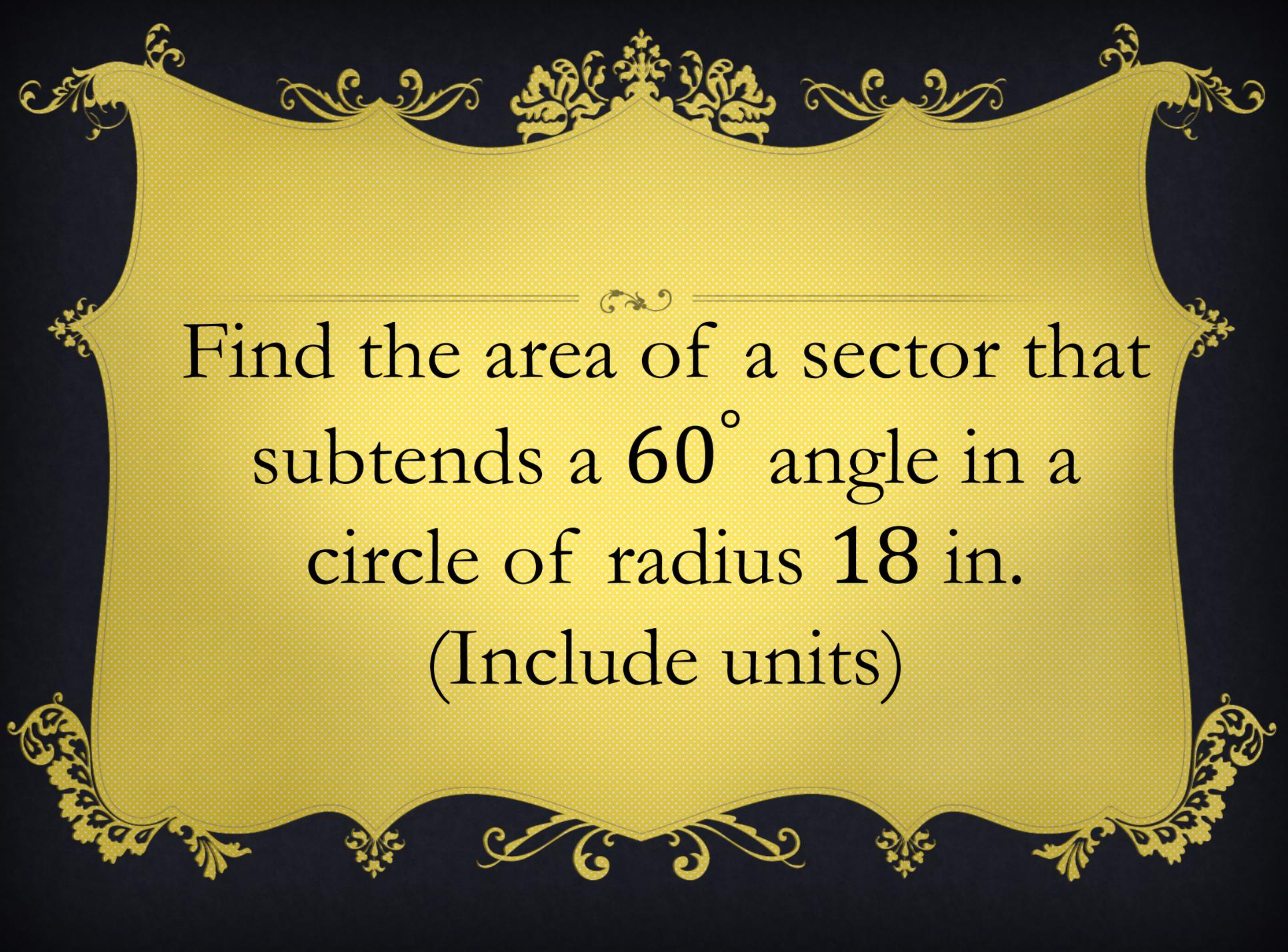
$(-5, -5)$

Solve for t .

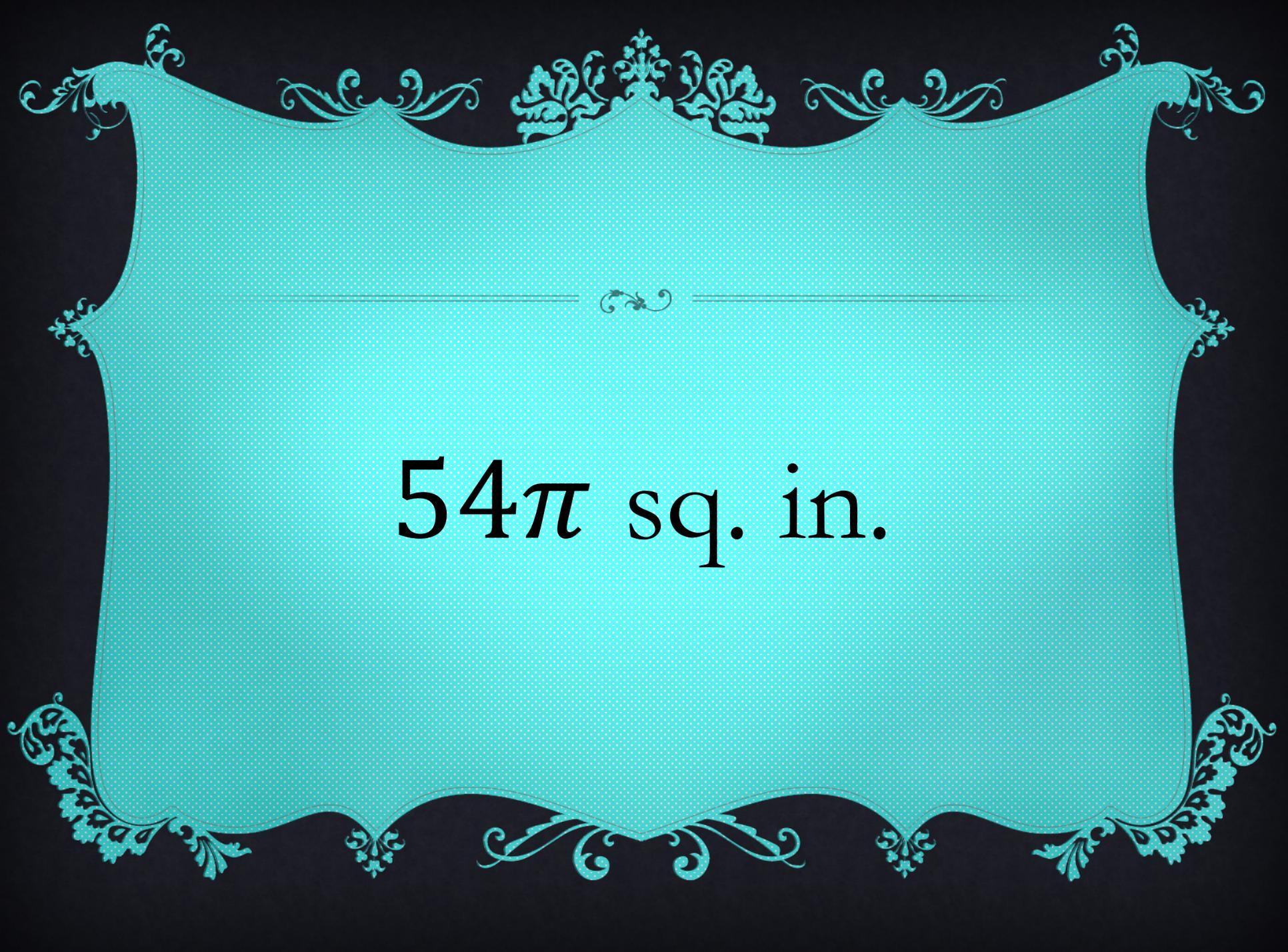
$$\left(\frac{3}{2}\right)^t = \frac{4}{9}$$

Solve for t .

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



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



54π sq. in.

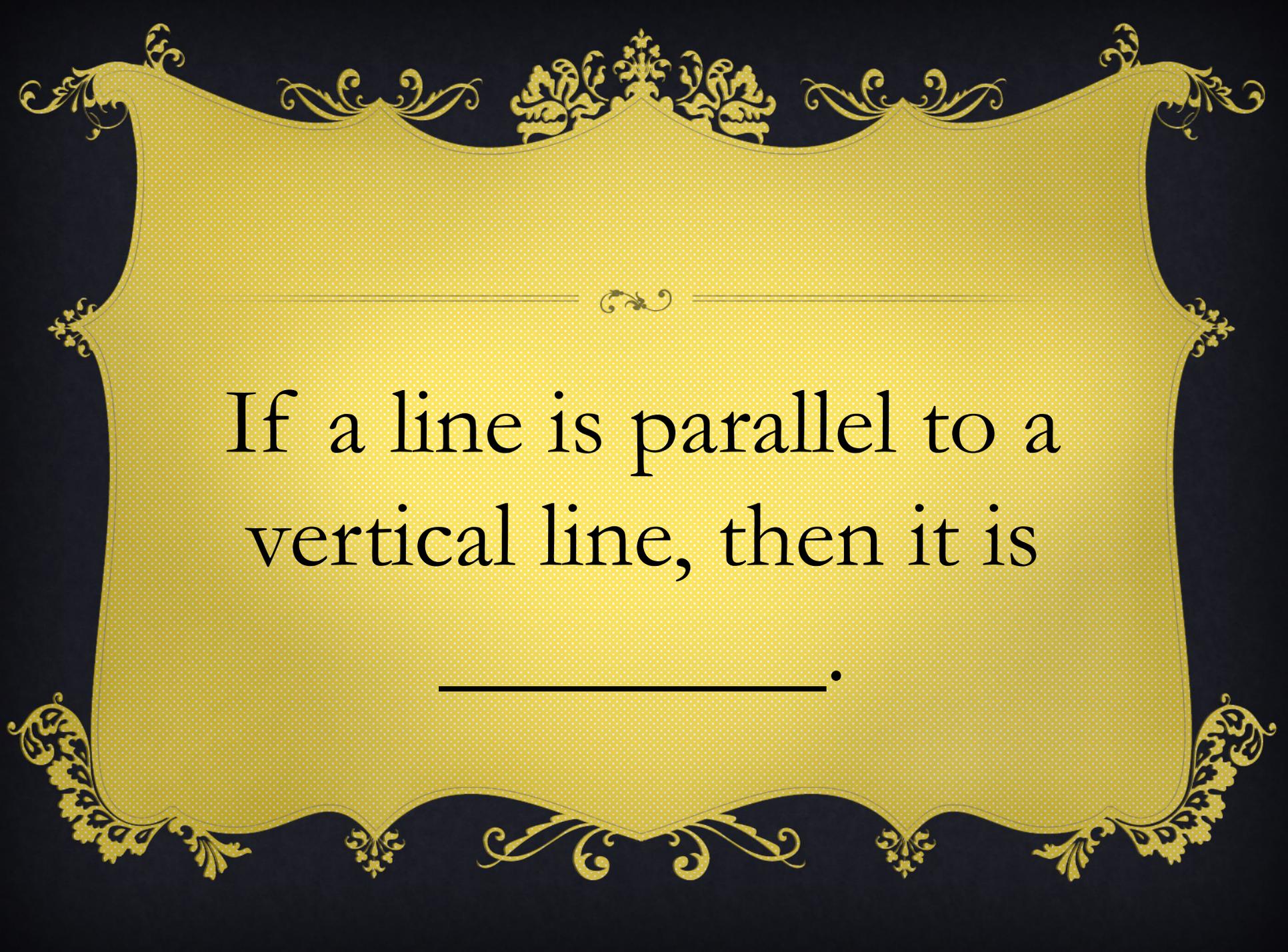
Solve for y .

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

Solve for y .

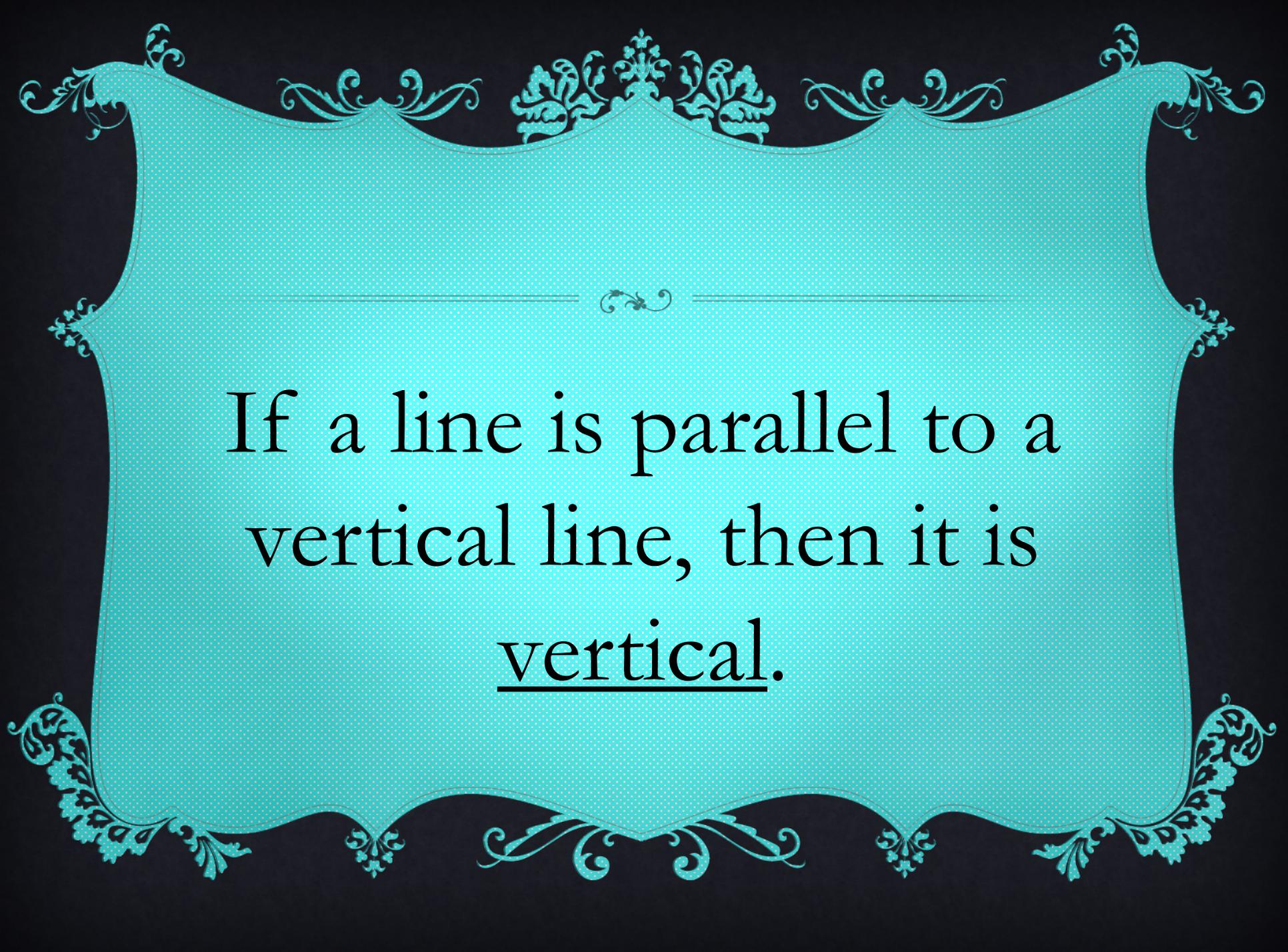
$$\sqrt{5y + 9} = -8$$

(no solutions)

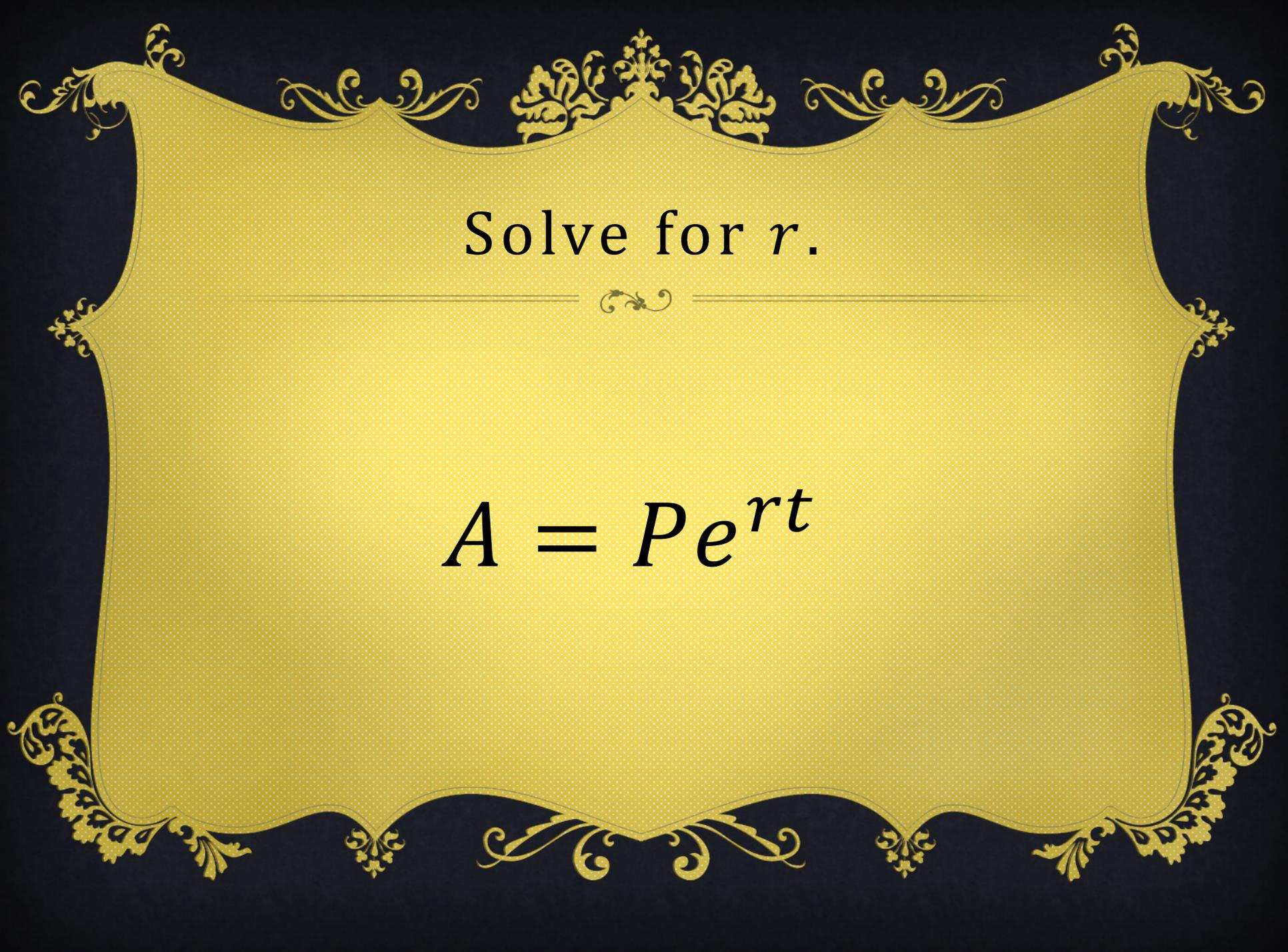


If a line is parallel to a
vertical line, then it is

_____.



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



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**