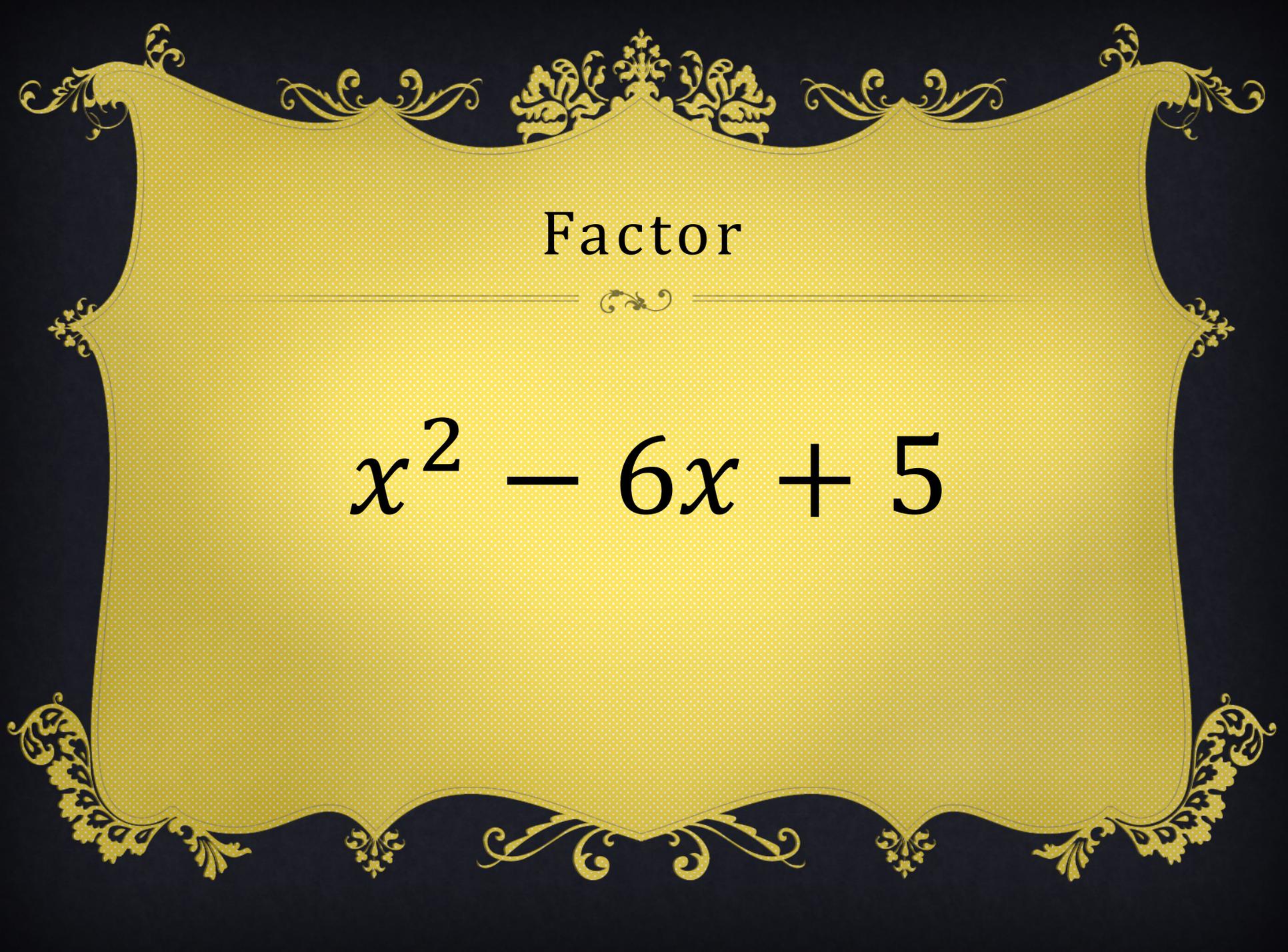




QUIZ BOWL

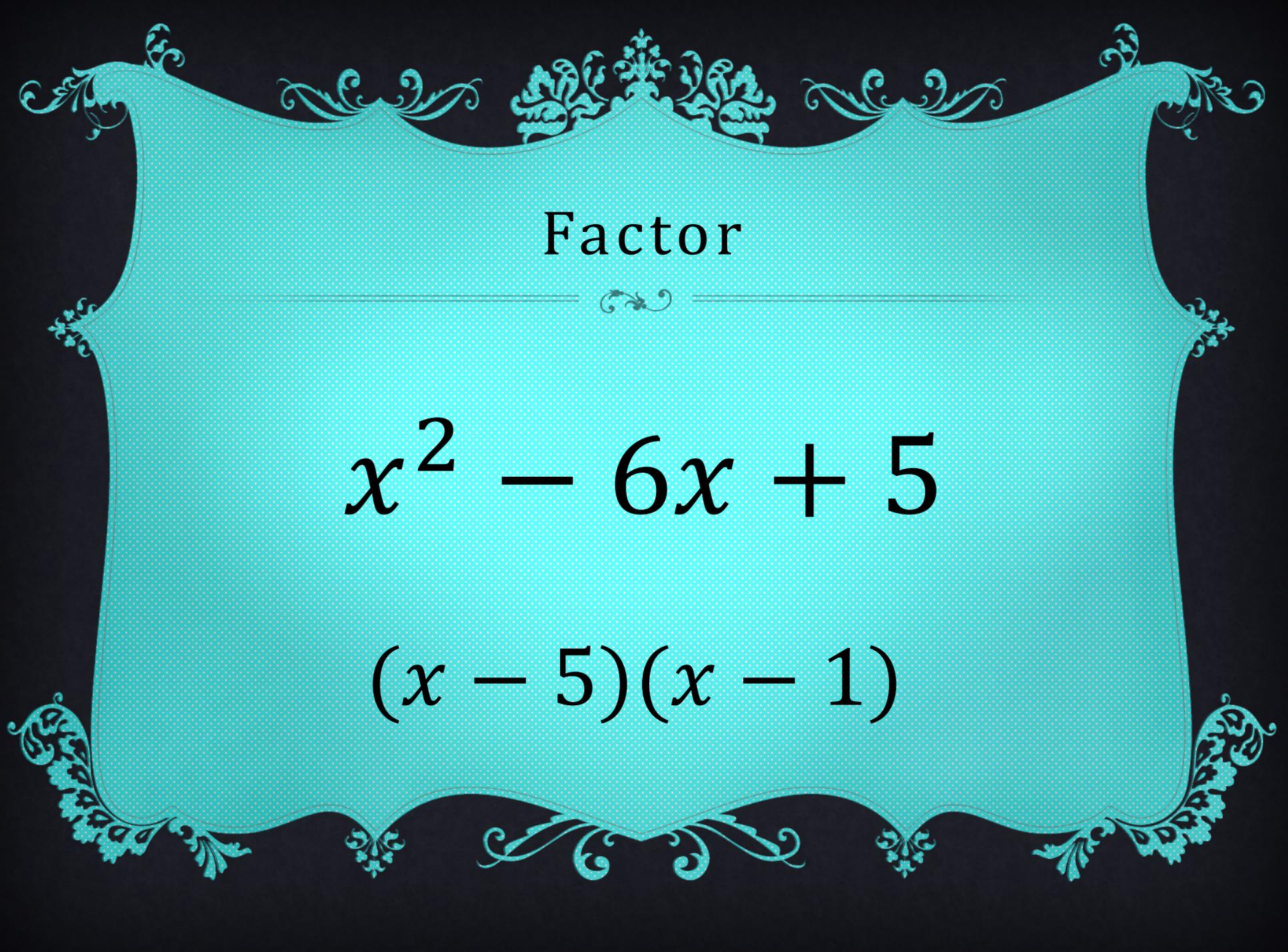
XAVIER UNIVERSITY

2024 MATHEMATICS COMPETITION



Factor

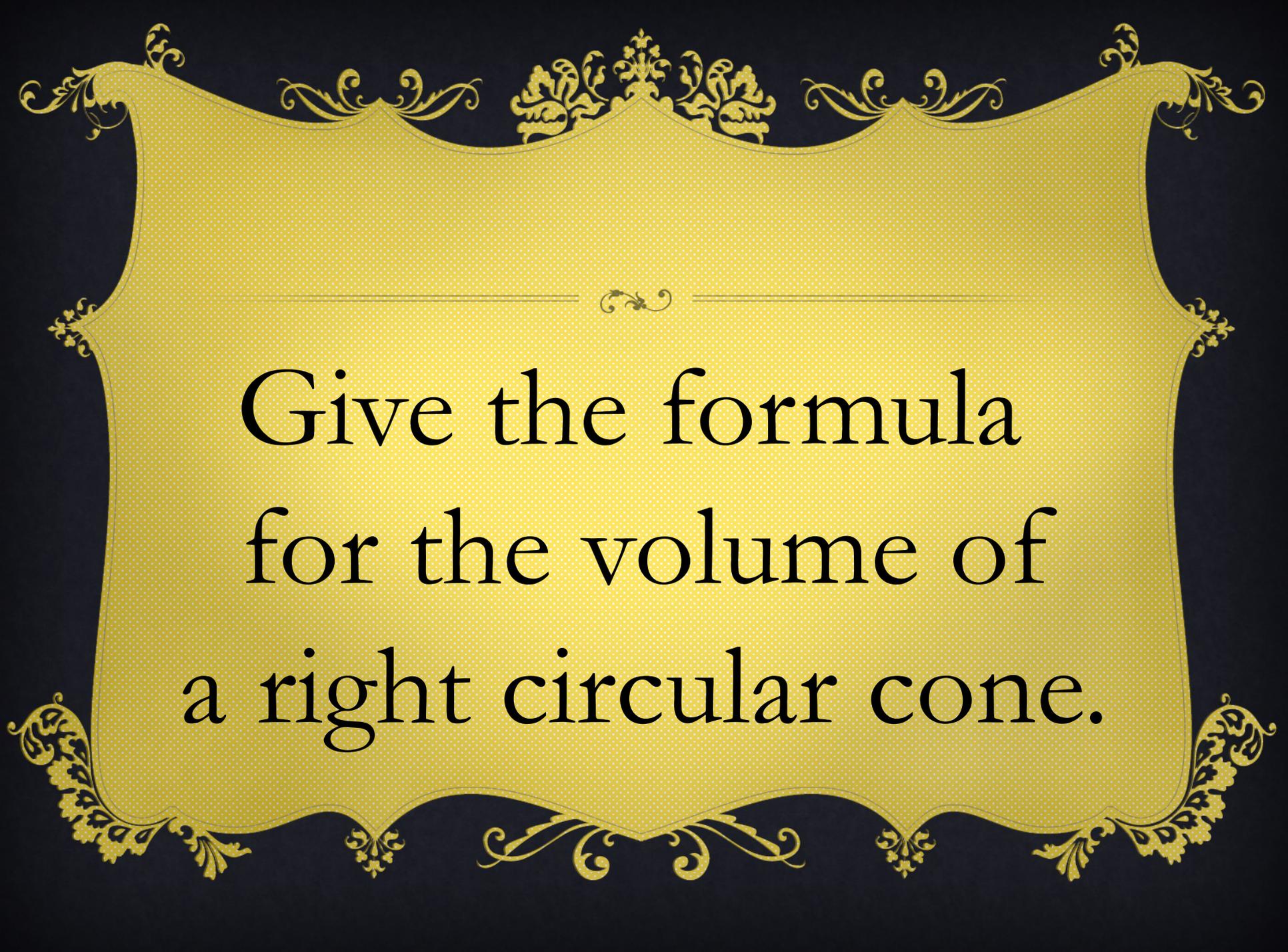
$$x^2 - 6x + 5$$



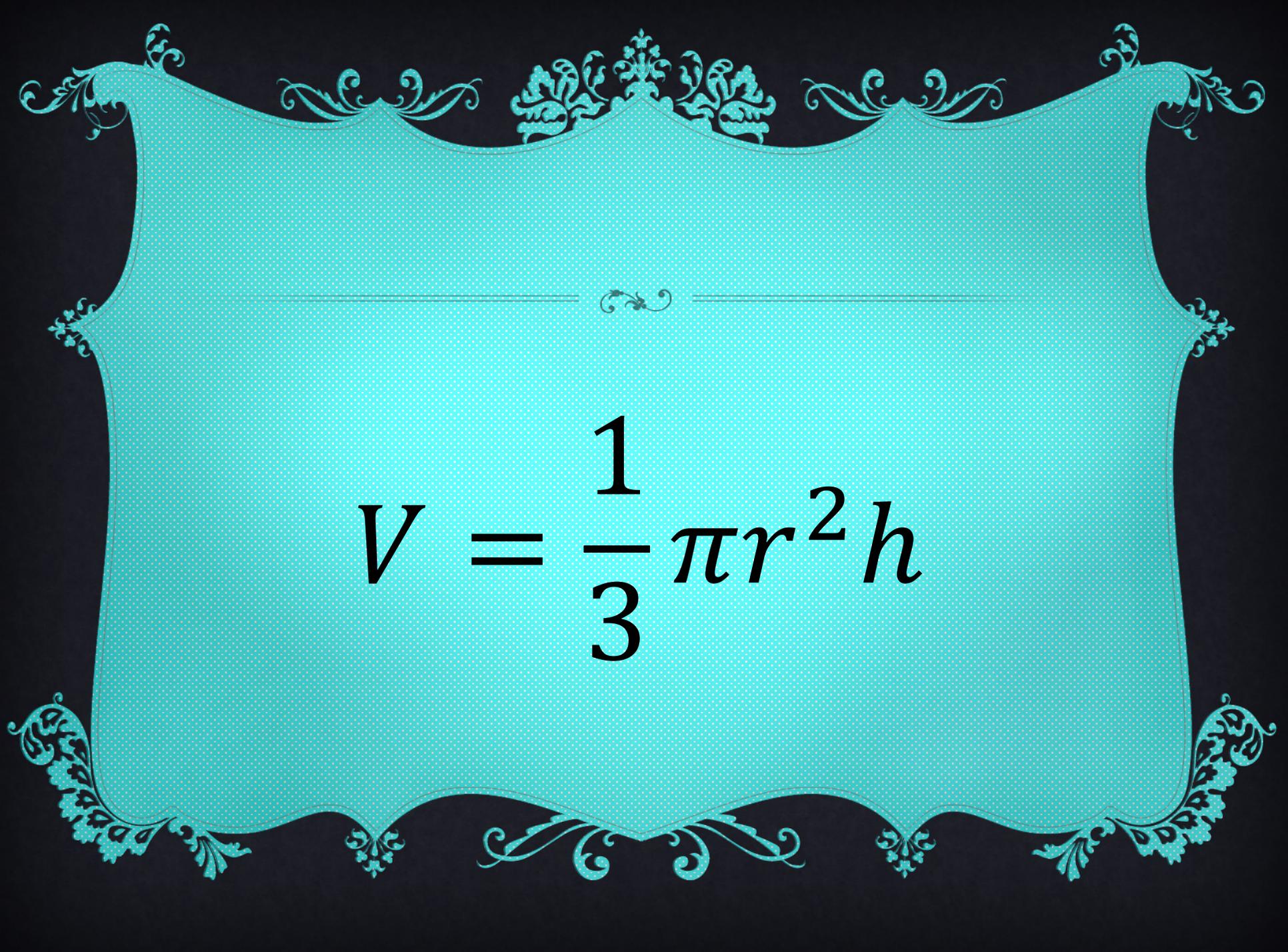
Factor

$$x^2 - 6x + 5$$

$$(x - 5)(x - 1)$$



Give the formula
for the volume of
a right circular cone.


$$V = \frac{1}{3} \pi r^2 h$$



Simplify.

$$-2^{-3}$$

Simplify.

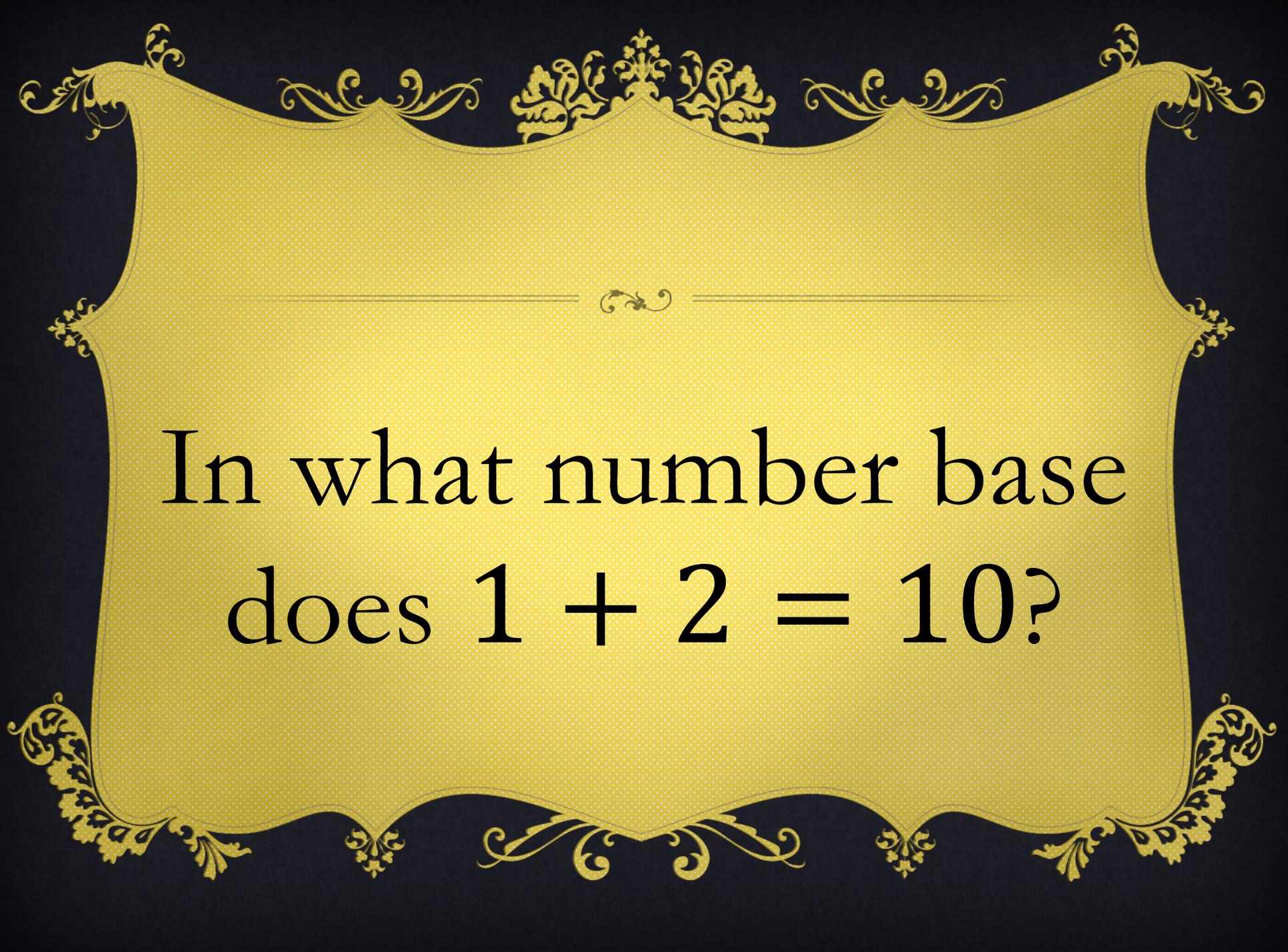
$$-2^{-3} = -\frac{1}{8}$$

Simplify.

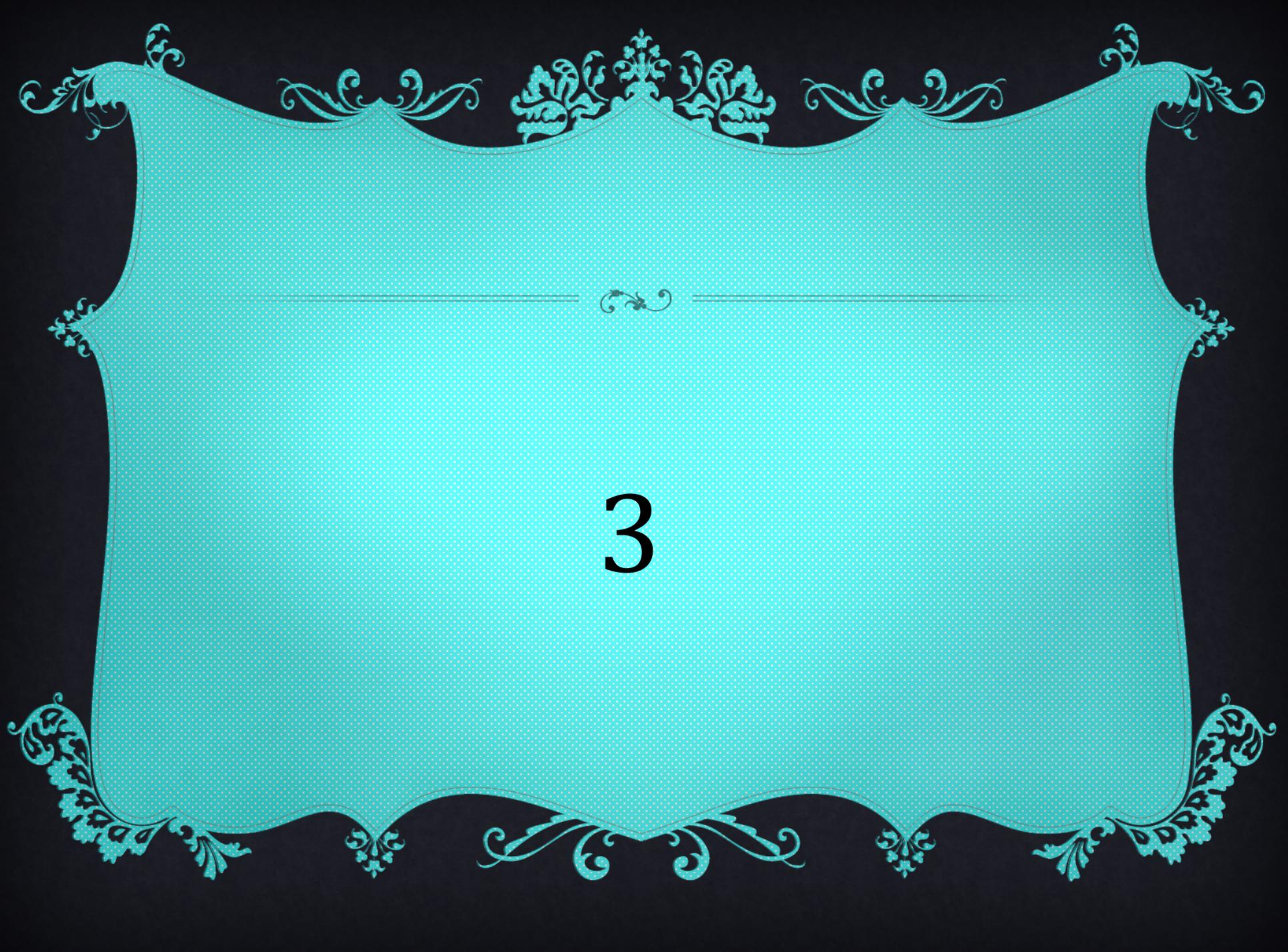
$$\frac{5}{9} + \frac{1}{3}$$

Simplify.

$$\frac{5}{9} + \frac{1}{3} = \frac{8}{9}$$



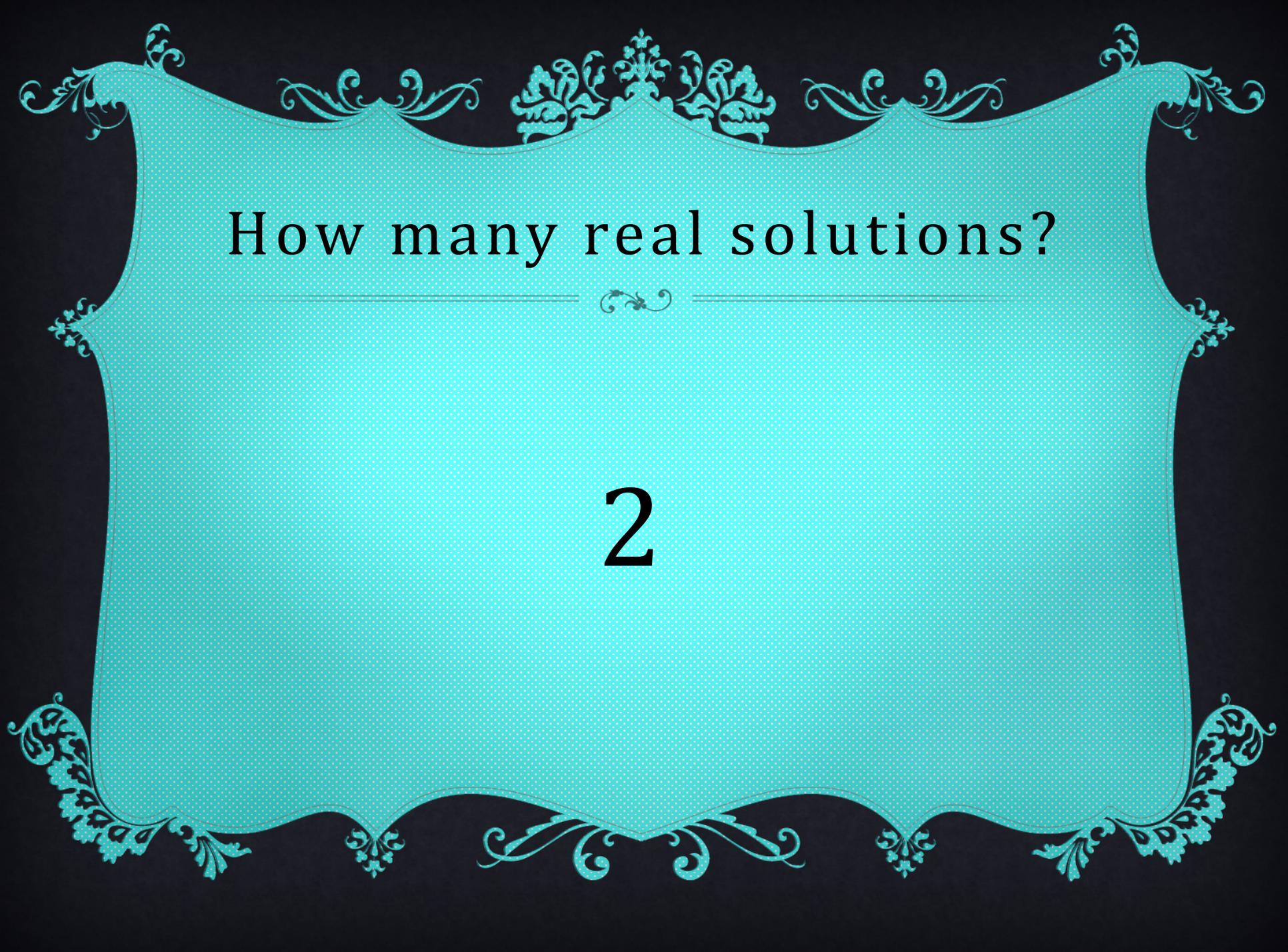
In what number base
does $1 + 2 = 10$?



3

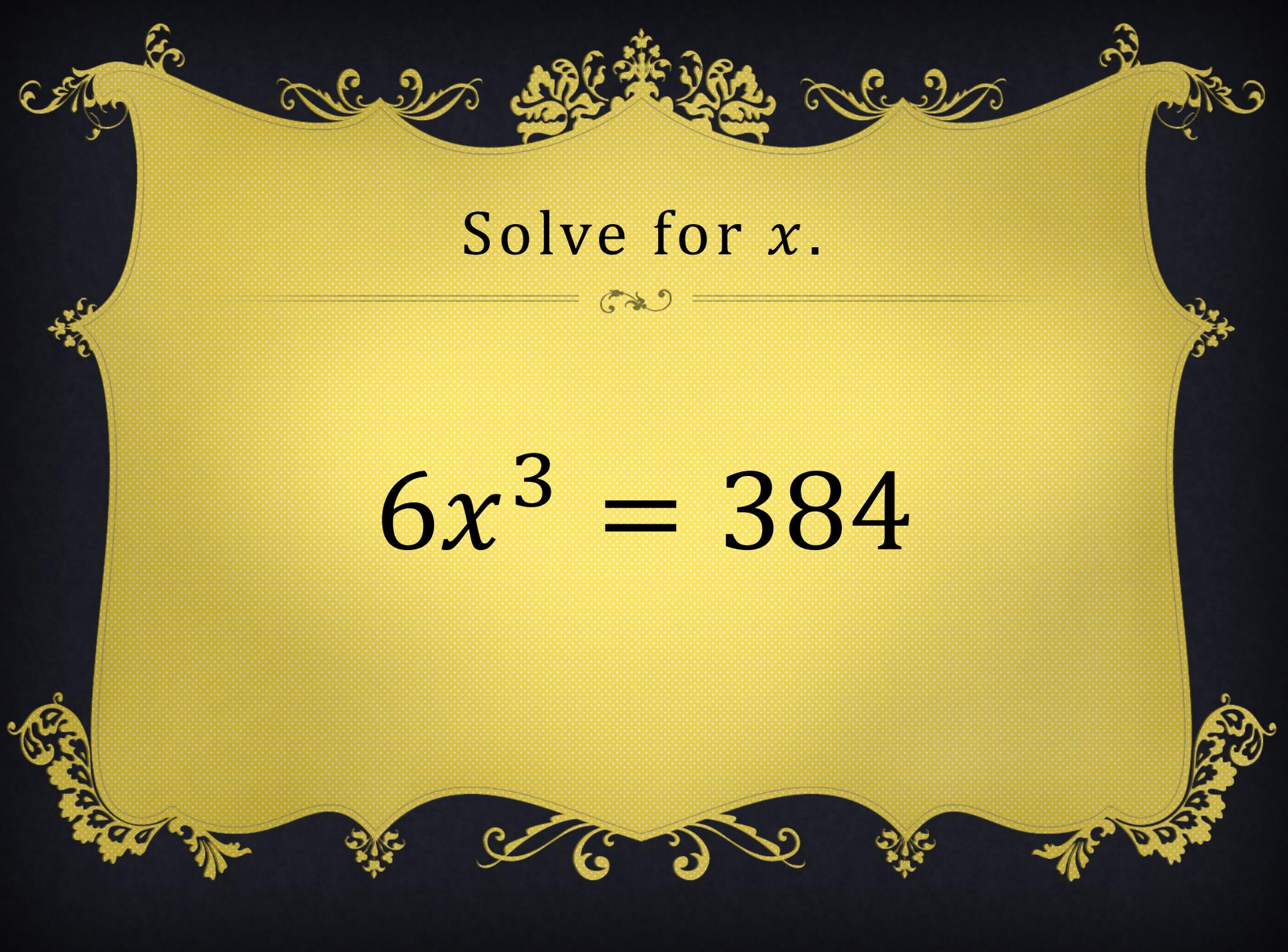
How many real solutions?

$$x^2 + 4x = 2$$



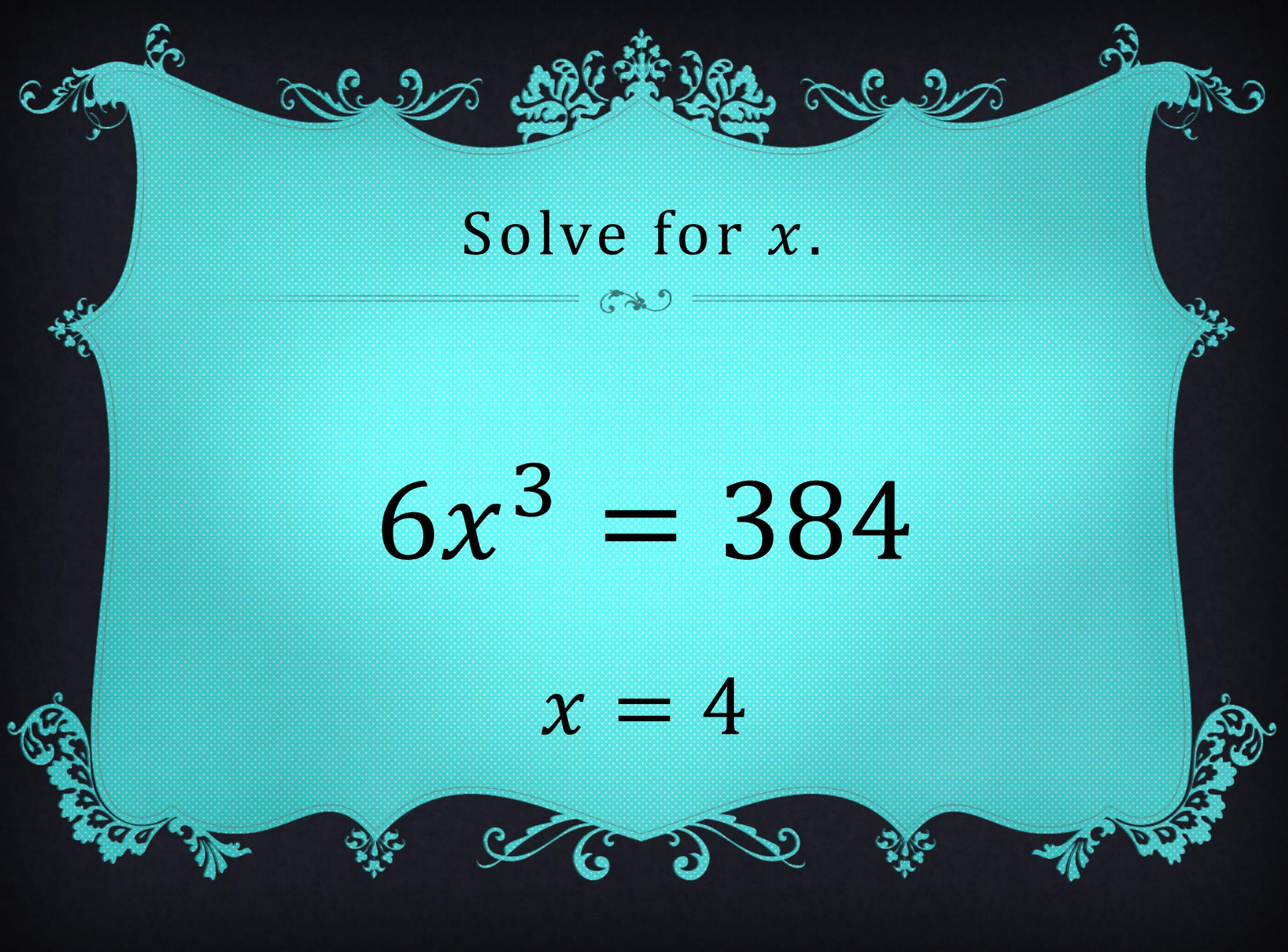
How many real solutions?

2



Solve for x .

$$6x^3 = 384$$



Solve for x .

$$6x^3 = 384$$

$$x = 4$$

Solve for the acute angle x .

$$\sin(x) = \frac{1}{2}$$

Solve for the acute angle x .

$$\sin(x) = \frac{1}{2}$$

$$x = \frac{\pi}{6} \text{ (or } 30^\circ)$$



Simplify.

$$\log_{25}(5)$$

Simplify.

$$\log_{25}(5)$$

$$\frac{1}{2}$$

Which is closest to $(1, -2)$?

$(3, -5)$

$(0, 3)$

$(3, 0)$

$(-5, -5)$

Which is closest to $(1, -2)$?

$(3, 0)$

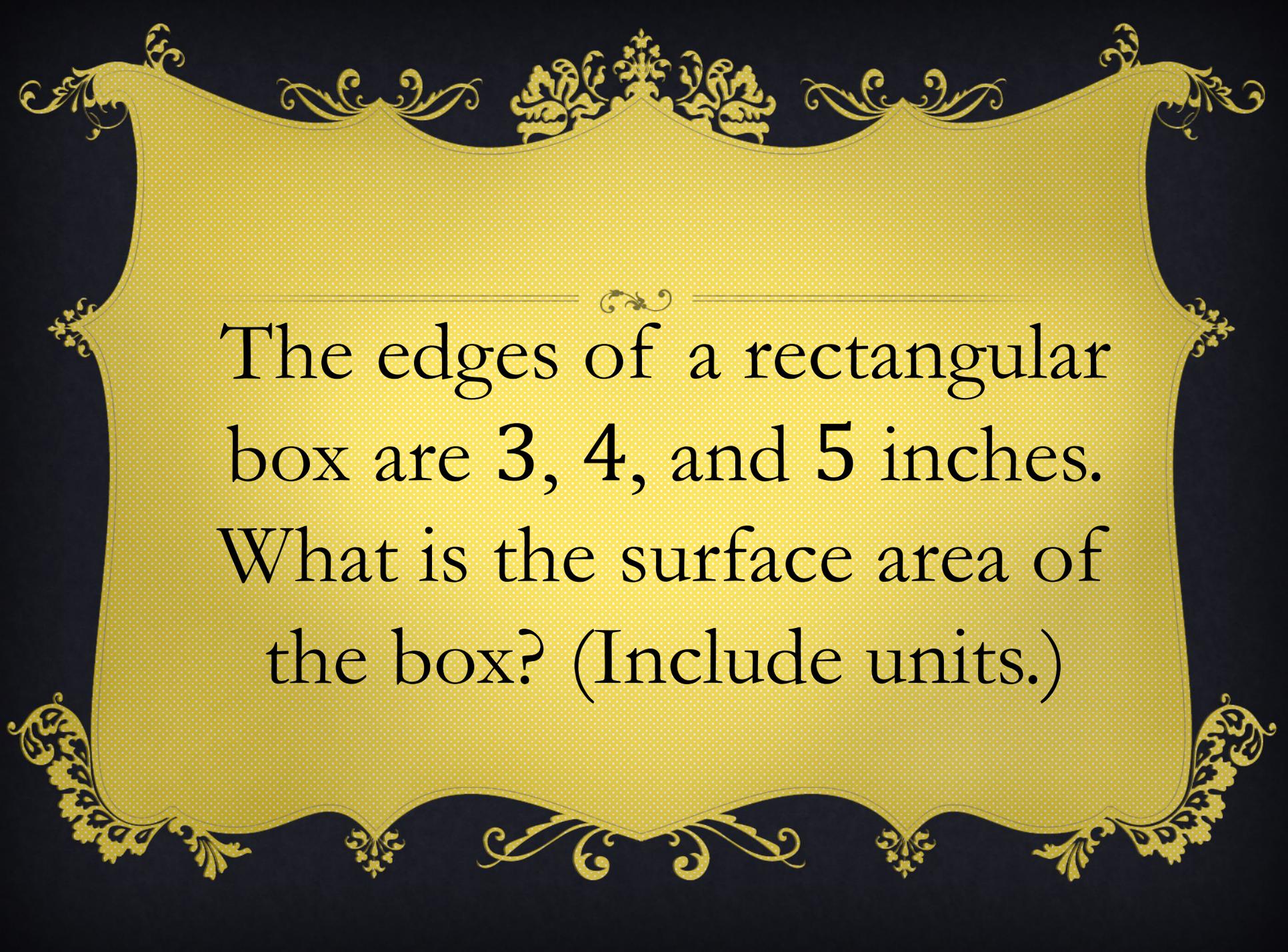
Solve for t .

$$4^{3-2t} = 1$$

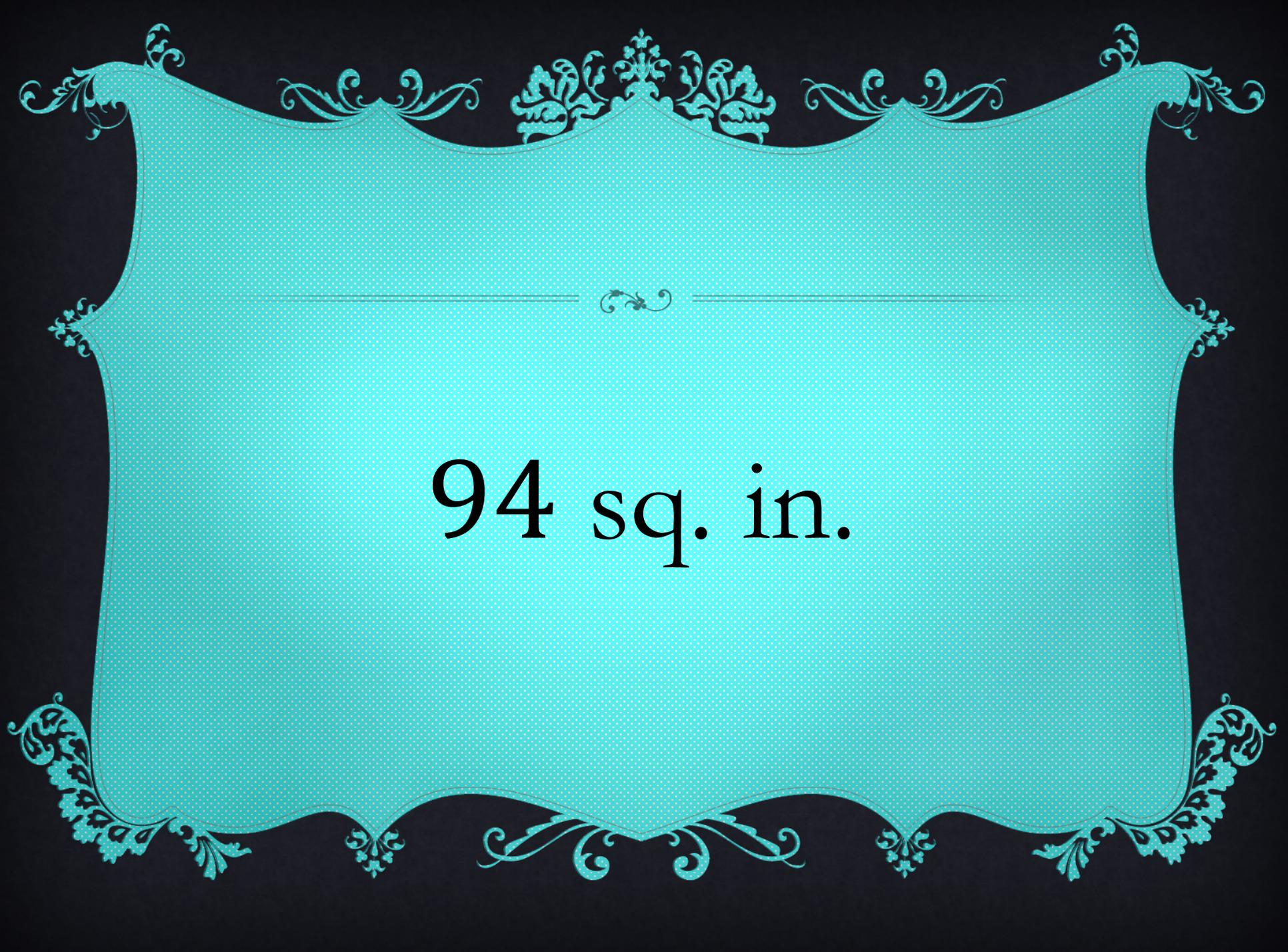
Solve for t .

$$4^{3-2t} = 1$$

$$t = \frac{3}{2}$$



The edges of a rectangular box are 3, 4, and 5 inches. What is the surface area of the box? (Include units.)



94 sq. in.

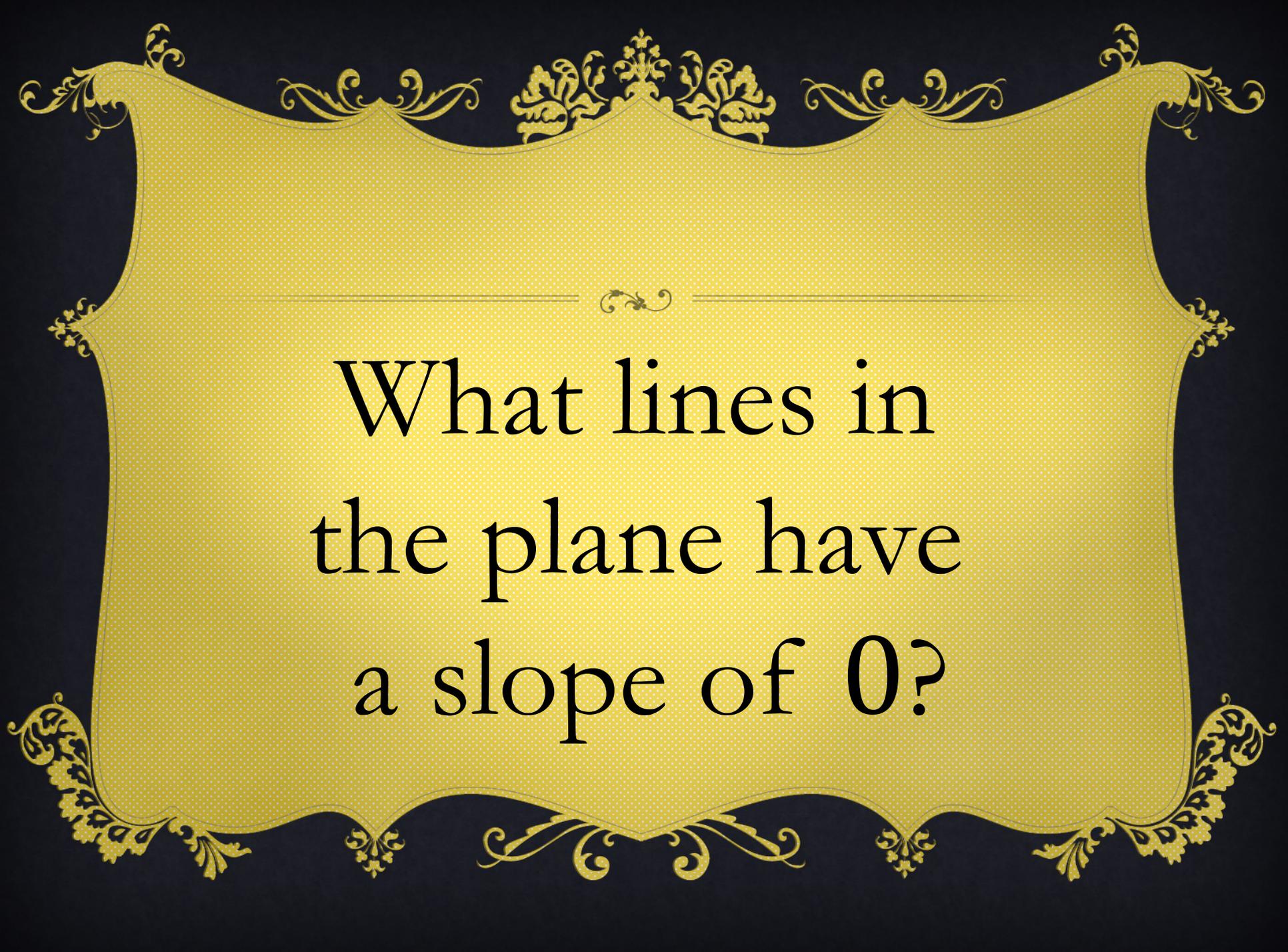
Solve for x .

$$\sqrt{2x - 5} = 7$$

Solve for x .

$$\sqrt{2x - 5} = 7$$

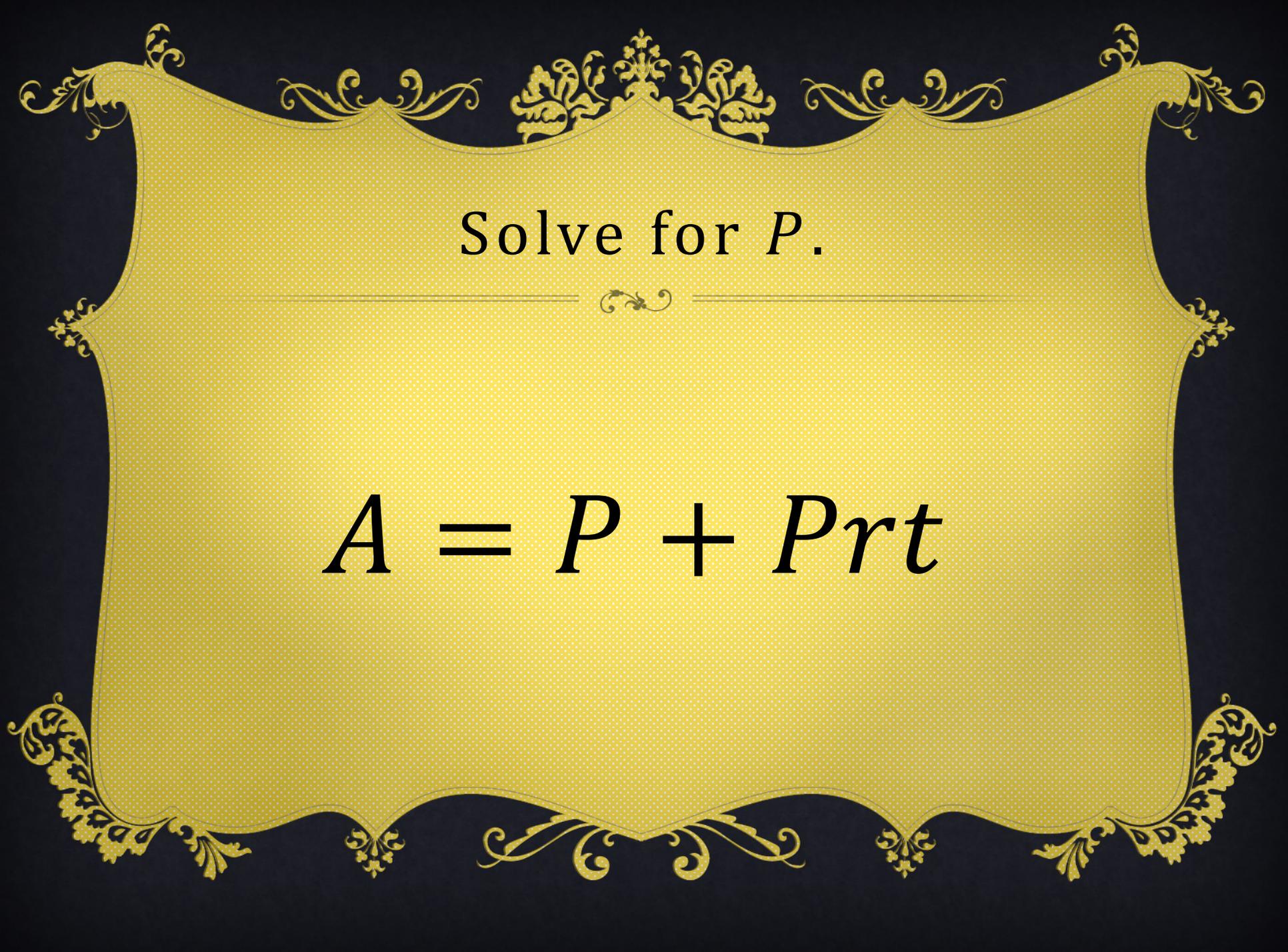
$$x = 27$$



What lines in
the plane have
a slope of 0?



horizontal lines



Solve for P .

$$A = P + Prt$$

Solve for P .

$$A = P + Prt$$

$$P = \frac{A}{1 + rt}$$



**END OF
ROUND 1**