Stating the Equation of a Parabola

Today we are revising...

How to state the equation of a parabola just by looking at it.

I will know if I have been successful if...

I can state the equation given just the roots.

I can state the equation given the turning points.
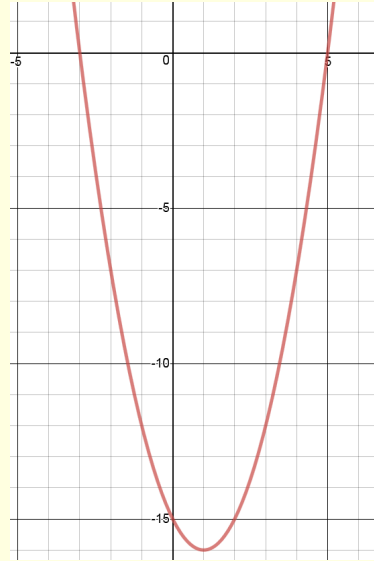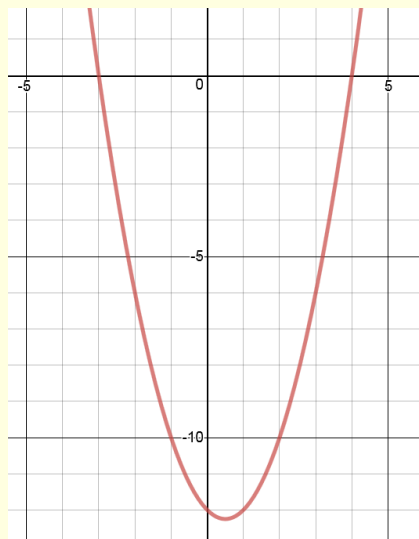
I feel confident about Tuesday!

Stating the Equation given the Roots

1) A parabola has roots (-3, 0) and (5, 0). Find the equation of the parabola.

Stating the Equation given the Roots

1) A parabola has roots (-3, 0) and (5, 0). Find the equation of the parabola.

Stating the Equation given the Roots

2) A parabola has roots (4, 0) and (-3, 0). Find the equation of the parabola.

Stating the Equation given the Roots

Find the equation of the parabola with roots...

1) (1, 0) & (3, 0)

2) (-3, 0) & (7, 0)

3) (-5, 0) & (1, 0)

4) (-4, 0) & (4, 0)

Challenge
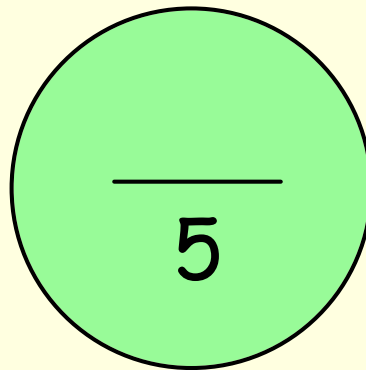
5) (0, 0) & (2.5, 0)

Answers

1) $y = x^2 - 4x + 3$

2) $y = x^2 + 4x - 21$

3) $y = x^2 + 4x - 5$

4) $y = x^2 - 16$

Challenge

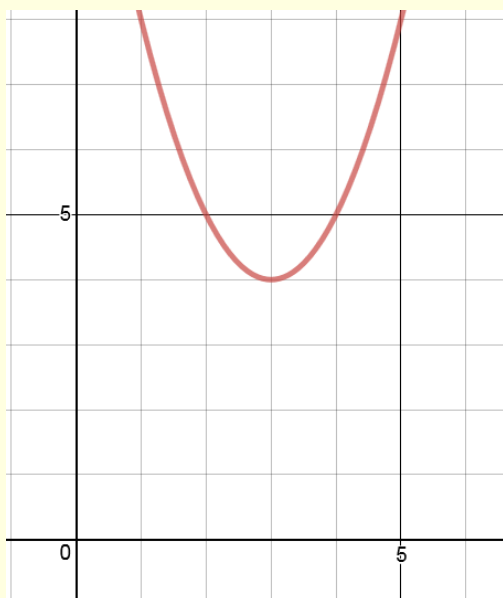5) $y = x^2 - 2.5x$

$\dfrac{\quad}{5}$

Stating the Equation given the Turning Point

If the parabola has a turning point at (a, b) it has an equation of the form...

$$y = (x - a)^2 + b$$
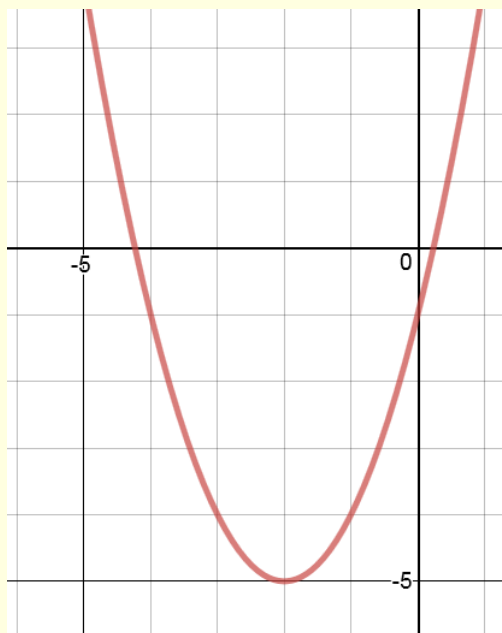
Stating the Equation given the Turning Point

1.

Turning Point =

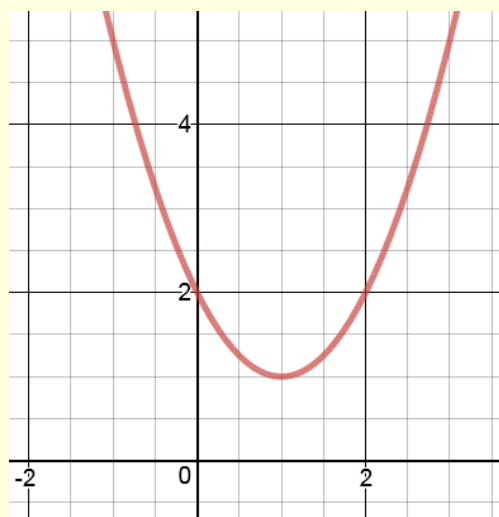## Stating the Equation given the Turning Point

2.

Turning Point =

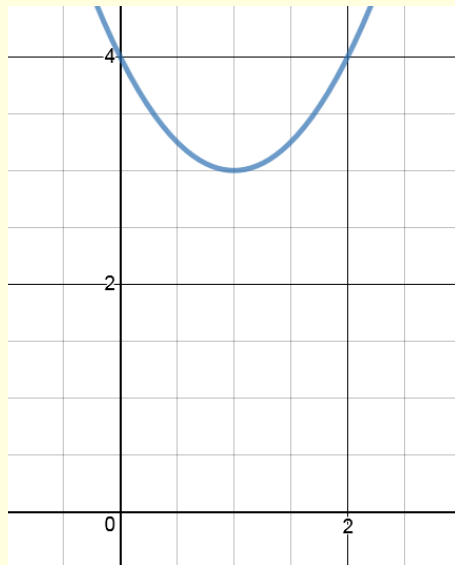## Stating the Equation given the Turning Point

3.

Turning Point =

Stating the Equation given the Turning Point

4.

Turning Point =

Exam Style Question

Parabolas

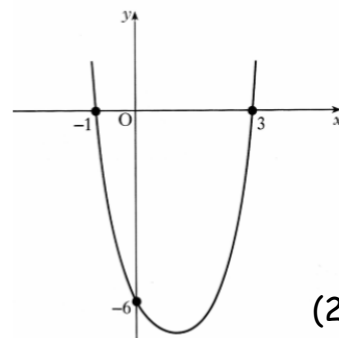nati

1.   The diagram shows part of the graph of a
quadratic function, with equation of the form

$$y = k(x-a)(x-b)$$

The graph cuts the y-axis at (0, -6) and
the x-axis at (-1, 0) and (3, 0)

a)   Write down the values of a and b.

(2)

Exam Style Question

2. (a) Express $x^2 + 6x - 4$ in the form $(x + a)^2 + b$. **2**

(b) If the graph of $y = x^2 + 6x - 4$ is drawn, what would the coordinates and nature of the turning point be? **2**
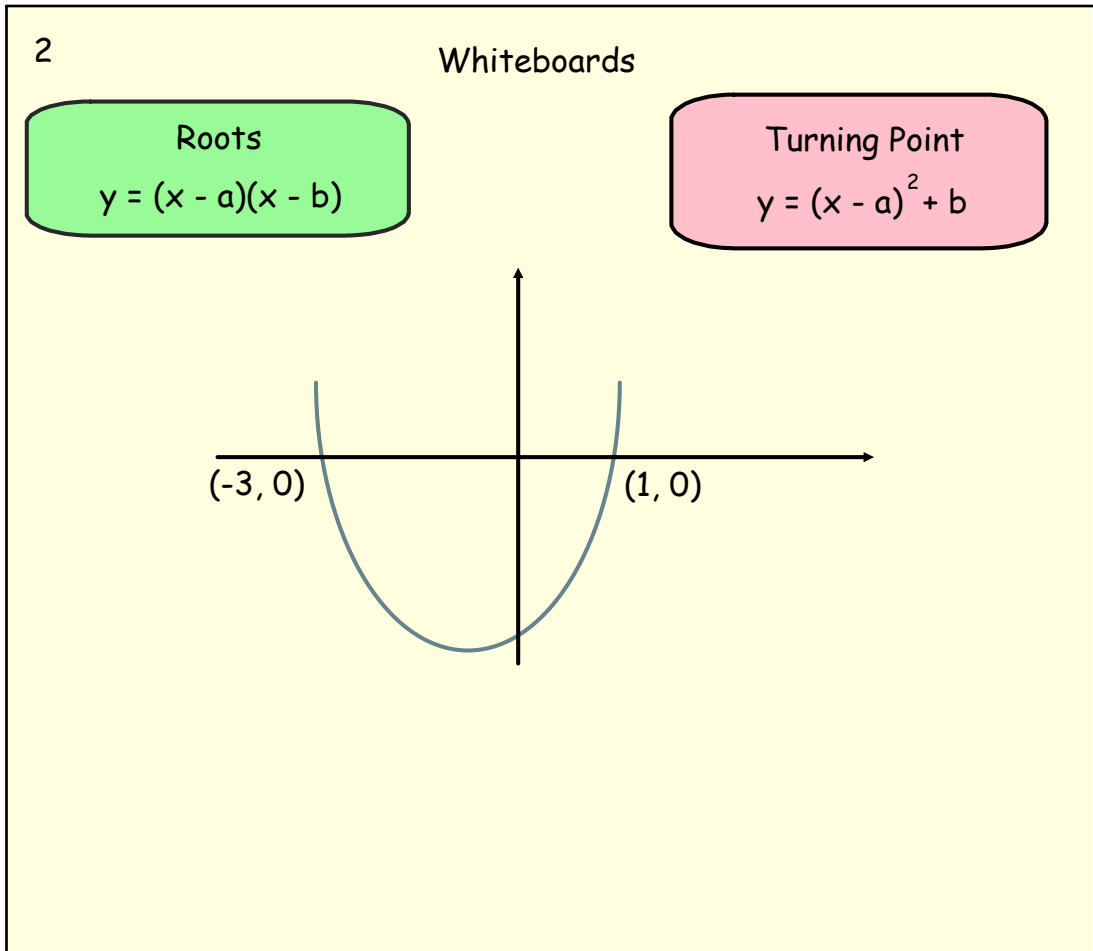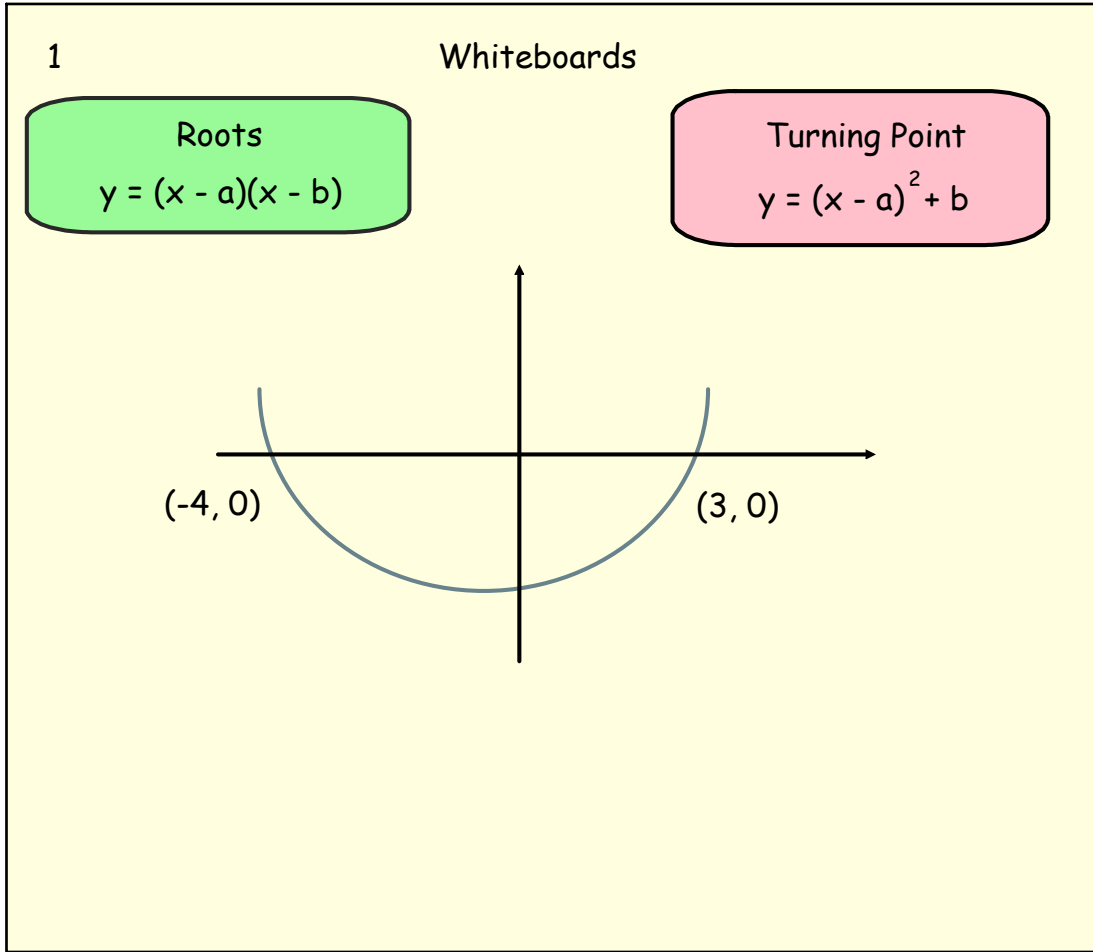
Whiteboards

Roots

$y = (x - a)(x - b)$

Turning Point

$y = (x - a)^2 + b$

1   Whiteboards

Roots

$y = (x - a)(x - b)$

Turning Point

$y = (x - a)^2 + b$

$(-4, 0)$ $(3, 0)$

2   Whiteboards

Roots

$y = (x - a)(x - b)$

Turning Point

$y = (x - a)^2 + b$

$(-3, 0)$ $(1, 0)$

3 Whiteboards

Roots

$y = (x - a)(x - b)$

Turning Point

$y = (x - a)^2 + b$

(-1, 0)   (1, 0)

4 Whiteboards

Roots

$y = (x - a)(x - b)$

Turning Point

$y = (x - a)^2 + b$

(-7, 0)   (0, 0)

5   Whiteboards

Roots
$y = (x - a)(x - b)$

Turning Point
$y = (x - a)^2 + b$

(-3, -1)

6   Whiteboards

Roots
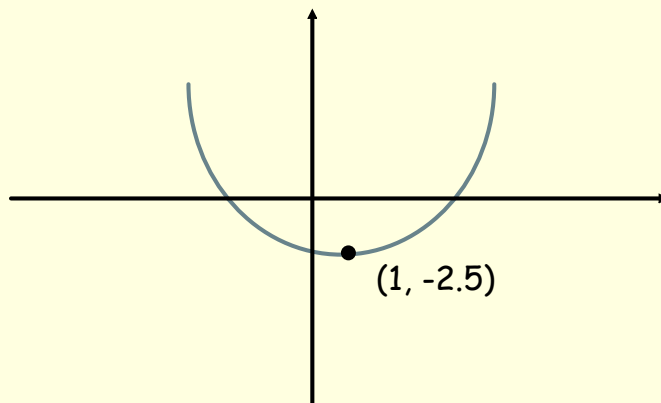$y = (x - a)(x - b)$

Turning Point
$y = (x - a)^2 + b$

(4, 2)

7   Whiteboards

Roots

$y = (x - a)(x - b)$

Turning Point

$y = (x - a)^2 + b$

(1, -2.5)

8   Whiteboards

(-5, -6)

9

Whiteboards

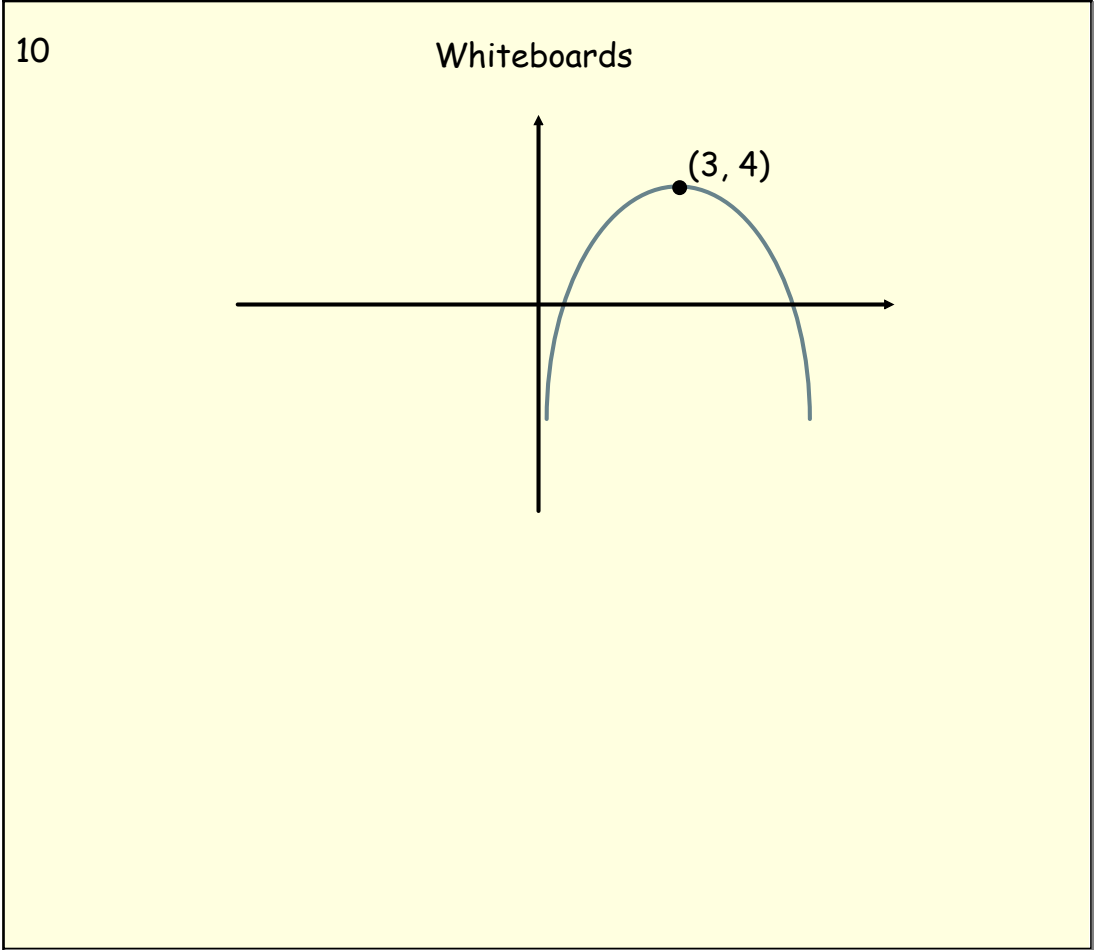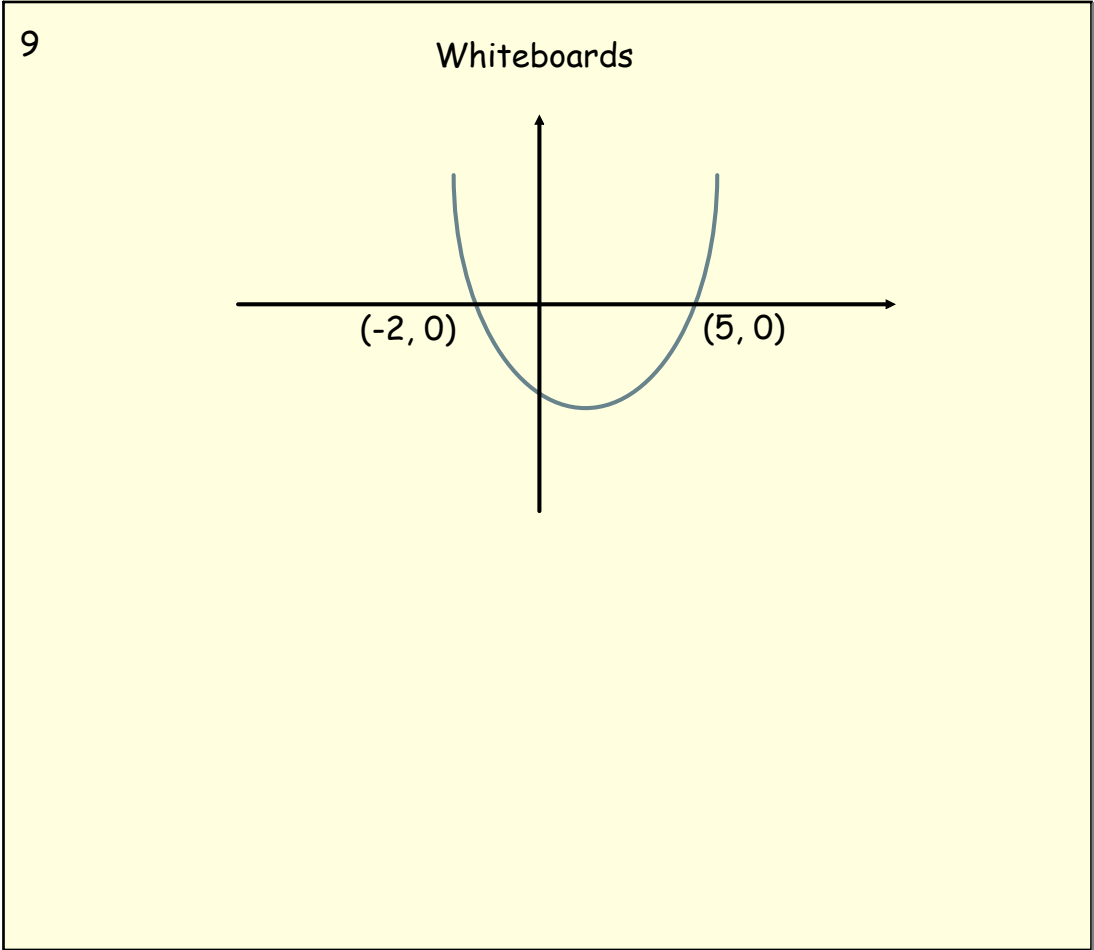(-2, 0)   (5, 0)

10

Whiteboards

(3, 4)

Stating the Equation of a Parabola

Today we are revising...

How to state the equation of a parabola just by looking at it.

I will know if I have been successful if...

I can state the equation given just the roots.

I can state the equation given the turning points.

I feel confident about Tuesday!