Date: _____ Name:_____

PRACTICE

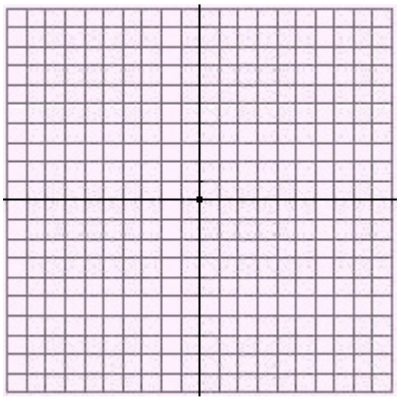
VERTEX FORM - The graph of $y = a(x-h)^2+k$ – putting it all together

1. $y = -2(x + 5)^2 - 3$

i) state the coordinates of the vertex

ii) state all the transformations

iii) sketch the graph on grid (show step by step transformations)

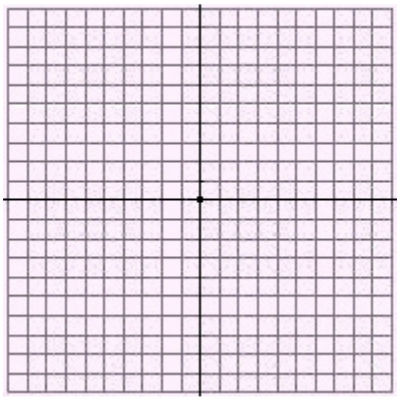


2. $y = 3(x - 1)^2$

i) state the coordinates of the vertex

ii) state all the transformations

iii) sketch the graph on grid (show step by step transformations)

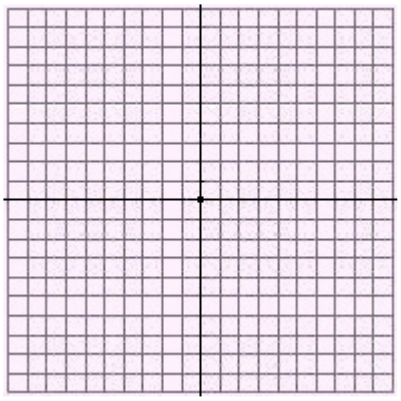


3. $y = -(x - 2)^2 + 4$

i) state the coordinates of the vertex

ii) state all the transformations

iii) sketch the graph on grid (show step by step transformations)



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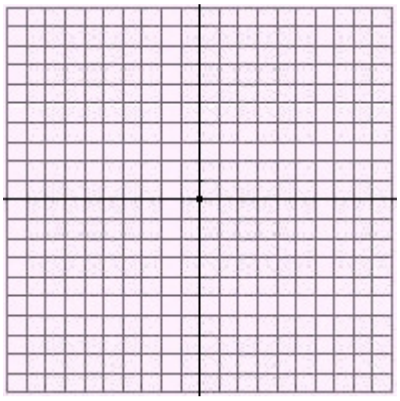
4. $y = \frac{1}{2}(x + 4)^2 - 7$

i) state the coordinates of the vertex

ii) state all the transformations

iii) sketch the graph on grid (can use step pattern)

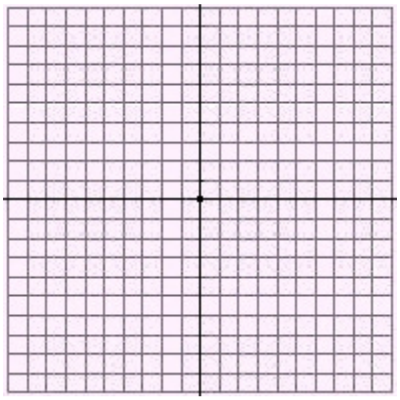


5. $y = (x - 1)^2 + 9$

i) state the coordinates of the vertex

ii) state all the transformations

iii) sketch the graph on grid (can use step pattern)

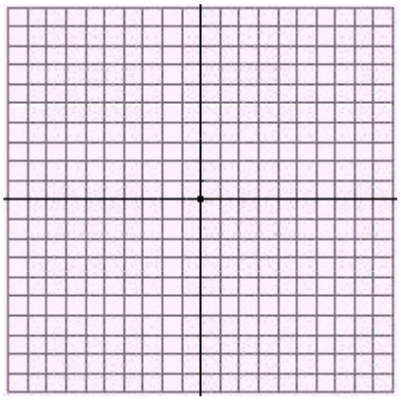


6. $y = -(x + 3)^2 - 2$

i) state the coordinates of the vertex

ii) state all the transformations

iii) sketch the graph on grid (can use step pattern)



Date: _____ Name:_____

PRACTICE

VERTEX FORM - The graph of $y = a(x-h)^2+k$ – putting it all together

1. $y = -2(x + 5)^2 - 3$

i) state the coordinates of the vertex

$(-5, -3)$

ii) state all the transformations

$a = -2$ → reflect in x-axis, vertical stretch

$h = -5$ → left shift

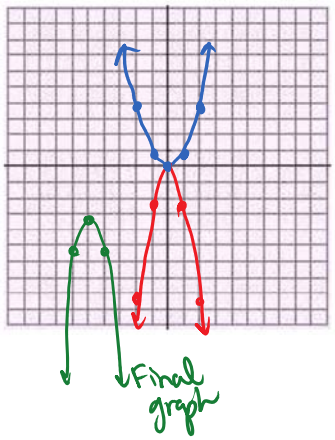
$k = -3$ → down shift

iii) sketch the graph on grid (show step by step transformations)

$y = x^2$

$y = -2x^2$

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



2. $y = 3(x - 1)^2$

i) state the coordinates of the vertex

$(1, 0)$

ii) state all the transformations

$a = 3$ → vertical stretch

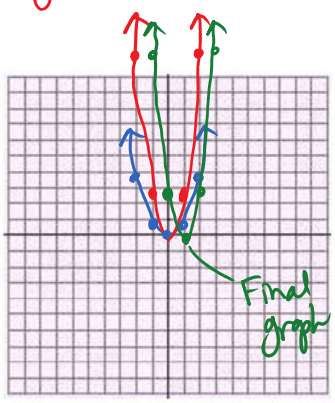
$h = 1$ → shift right

$k = 0$

iii) sketch the graph on grid (show step by step transformations)

$y = x^2$

$y = 3x^2$



$y = 3(x-1)^2$

3. $y = -(x - 2)^2 + 4$

i) state the coordinates of the vertex

$(2, 4)$

ii) state all the transformations

$a = -1$ → reflect in x-axis, nothing

$h = 2$ → shift right

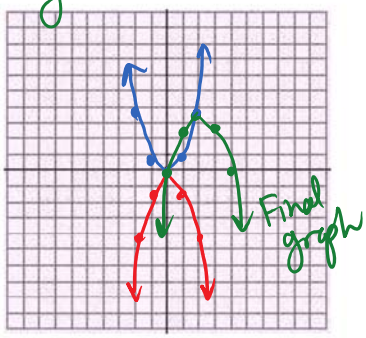
$k = 4$ → shift up

iii) sketch the graph on grid (show step by step transformations)

$y = x^2$

$y = -x^2$

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



Date: _____ Name: _____

4. $y = \frac{1}{2}(x + 4)^2 - 7$

i) state the coordinates of the vertex

$(-4, -7)$

ii) state all the transformations

$a = \frac{1}{2}$ → vertical compression

$h = -4$ → shift Left

$k = -7$ → shift down

iii) sketch the graph on grid (can use step pattern)

basic step pattern: $\frac{1}{1}, \frac{3}{1}, \frac{5}{1}, \ldots$

adjust: $\frac{0.5}{1}, \frac{1.5}{1}, \frac{2.5}{1}, \ldots$

5. $y = (x - 1)^2 + 9$

i) state the coordinates of the vertex

$(1, 9)$

ii) state all the transformations

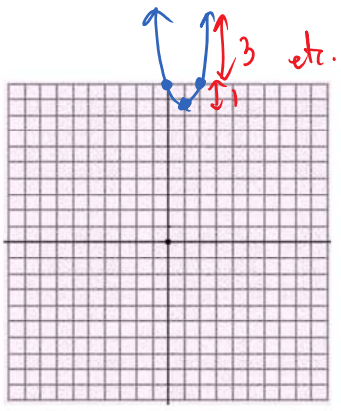
$a = 1$ → ~~~

$h = 1$ → shift right

$k = 9$ → shift up

iii) sketch the graph on grid (can use step pattern)

$\frac{1}{1}, \frac{3}{1}, \frac{5}{1}$



6. $y = -(x + 3)^2 - 2$

i) state the coordinates of the vertex

$(-3, -2)$

ii) state all the transformations

$a = -1$ → reflect in x-axis
→ nothing

$h = -3$ → shift left

$k = -2$ → shift down

iii) sketch the graph on grid (can use step pattern)

$(1, 3, 5) \cdot (-1)$

$\frac{-1}{1}, \frac{-3}{1}, \frac{-5}{1}$