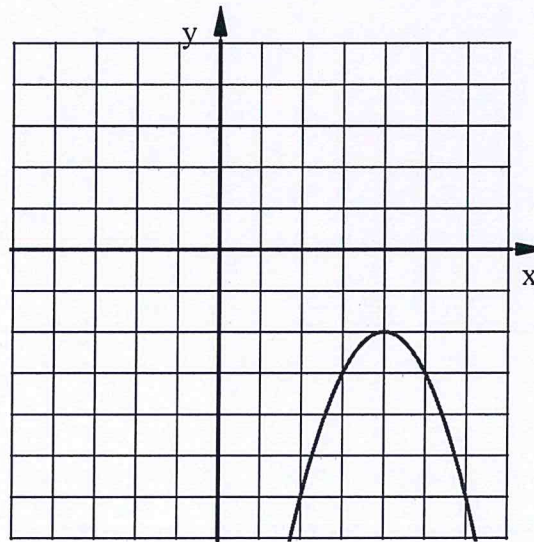1. Factor completely. $240x^7 - 636x^5 + 216x^3$

2. Use a sheet of graph paper to graph each with at least five points.

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

3. Write the equation for this graph.

1. Factor completely. $240x^7 - 636x^5 + 216x^3$

1. GCF = $12x^3$ $12x^3(20x^4 - 53x^2 + 18)$

2.
$$\begin{array}{c} 360 \\ -45 \diagup\diagdown -8 \\ -53 \end{array}$$

3.

$4x^2$	-9
$5x^2$	$20x^4$	$-45x^2$
-2	$-8x^2$	$+18$

$\longrightarrow$ $12x^3(5x^2-2)(4x^2-9)$

$12x^3(5x^2-2)(2x\pm3)$

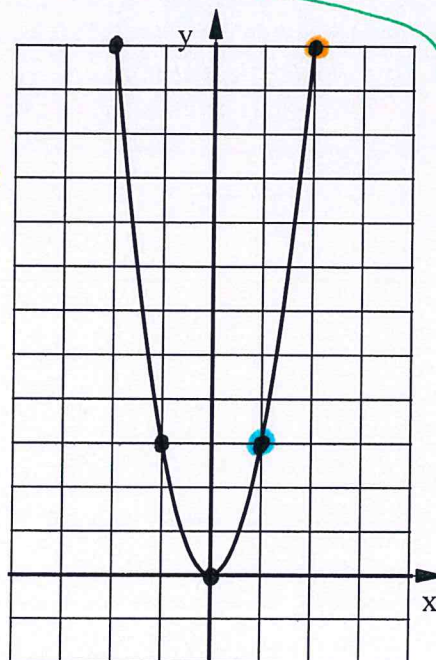2. Use a sheet of graph paper to graph each with at least five points.

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

opens down   3 left   6 up   Vertex is $(-3,6)$
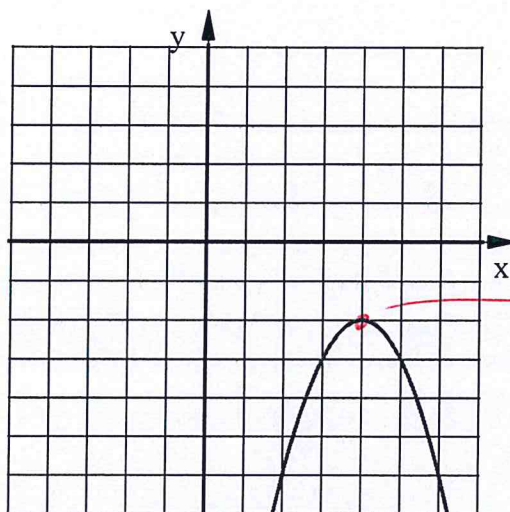
– same shape as parent function
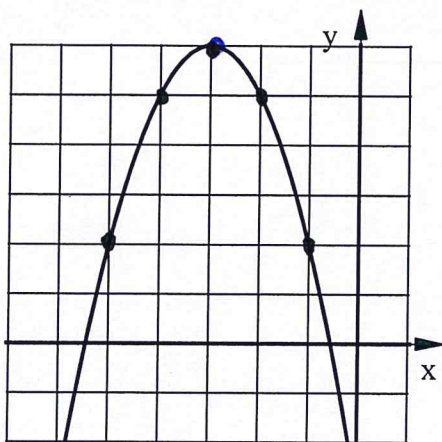
b) $y = 3x^2$ $\longrightarrow$ no horiz. or vert. translation, therefore, vertex is still $(0,0)$

$\hookrightarrow$ 3 times taller

1ST Good pt

parent   THIS func

$\rfloor 1 \times 3 \rightarrow \rfloor 3$

2ND Good pt

parent   THIS func

$\rfloor\frac{4}{2} \times 3 \rightarrow \rfloor\frac{12}{2}$

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3. Write the equation for this graph.

4 right 2 down

vertex $(-4,-2)$

$h = -4$
$k = -2$

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

THIS parabola hase the same shape as the parent function but opens down.