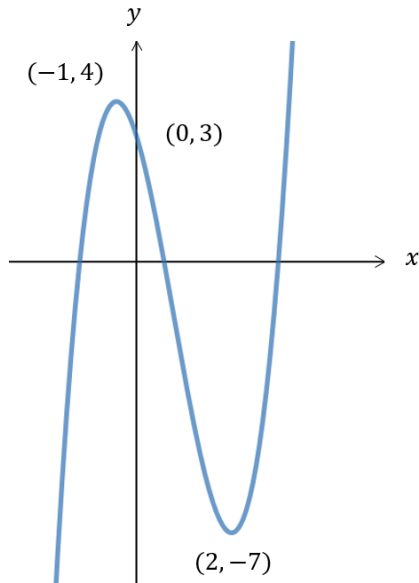


2.6) Combining transformations

Worked example

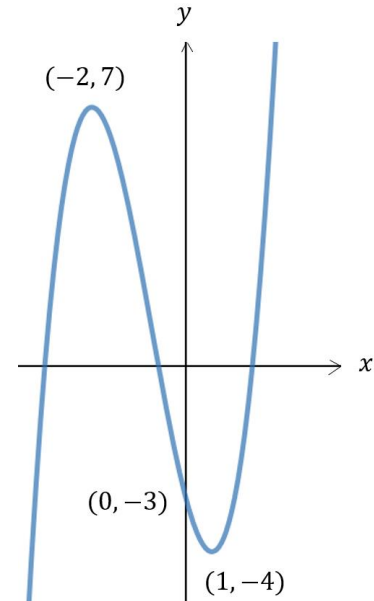
A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = f(x) - 2$

Your turn

A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = f(x) + 3$

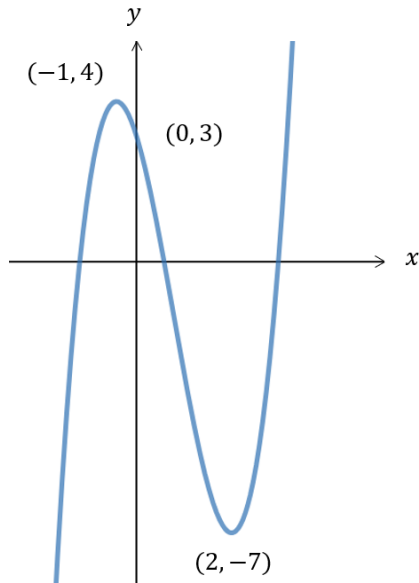
Correct sketch

New y-intercept: $(0, 0)$

New turning points: $(-2, 10)$ and $(1, -1)$

Worked example

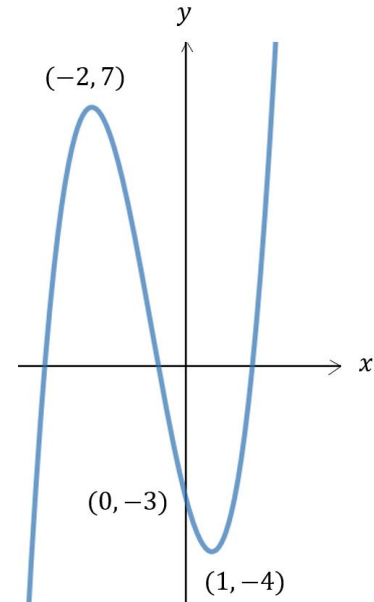
A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = f(x - 2)$

Your turn

A sketch of the graph $y = f(x)$ is shown:



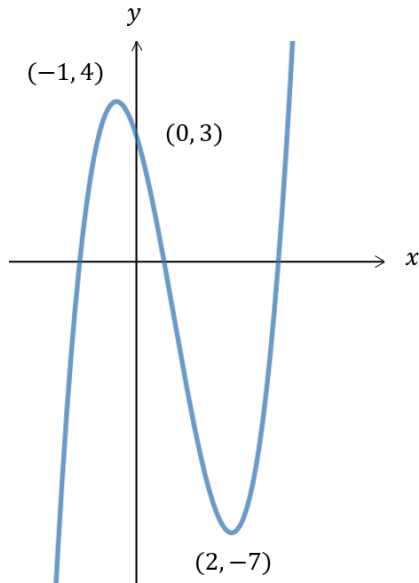
Sketch the graph of $y = f(x + 3)$

Correct sketch

New turning points: $(-5, 7)$ and $(-2, -4)$

Worked example

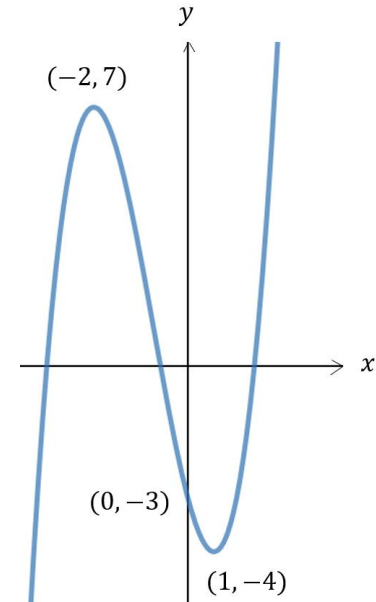
A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = 3f(x)$

Your turn

A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = 2f(x)$

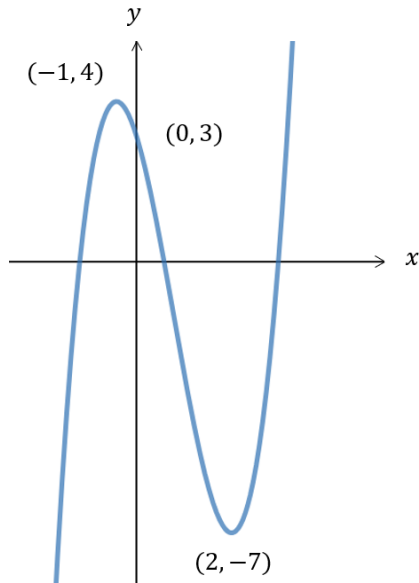
Correct sketch

New y-intercept: $(0, -6)$

New turning points: $(-2, 14)$ and $(1, -8)$

Worked example

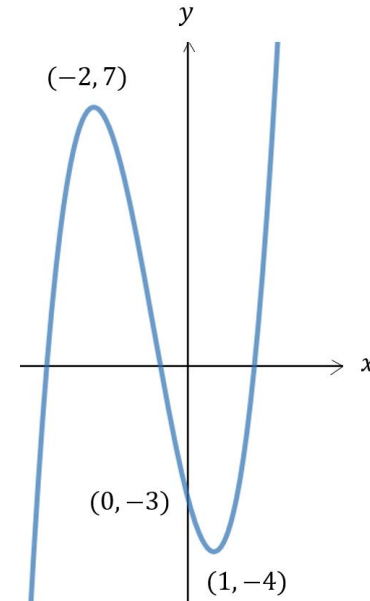
A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = f(2x)$

Your turn

A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = f(3x)$

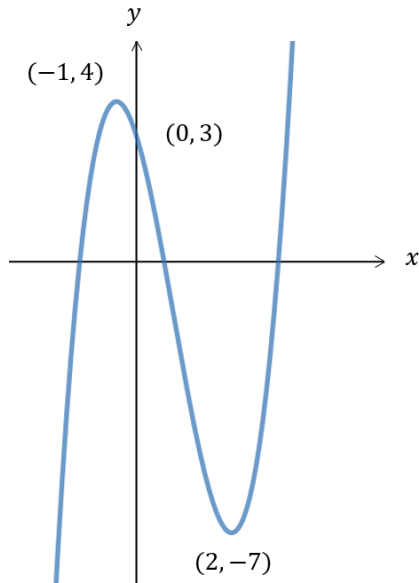
Correct sketch

New y-intercept: $(0, -3)$

New turning points: $(-\frac{2}{3}, 14)$ and $(\frac{1}{3}, -8)$

Worked example

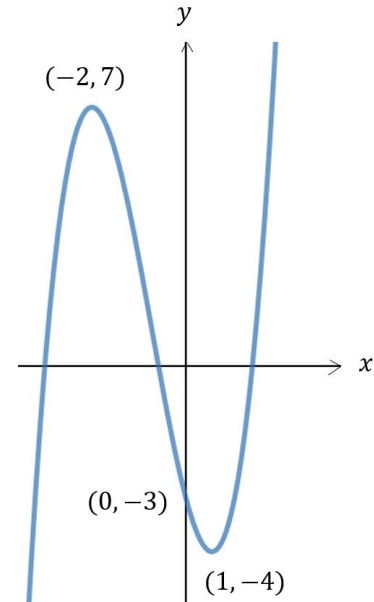
A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = -f(x)$

Your turn

A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = -f(x)$

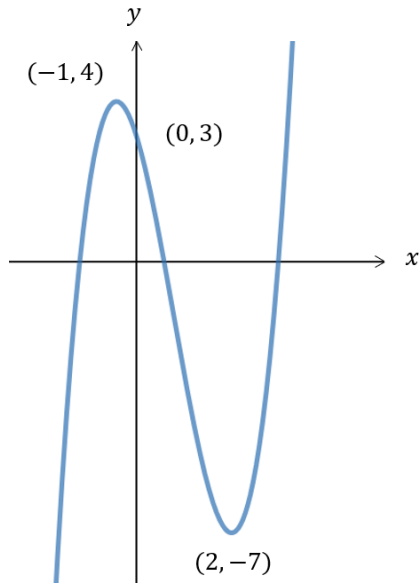
Correct sketch

New y-intercept: $(0, 3)$

New turning points: $(-2, -7)$ and $(1, 4)$

Worked example

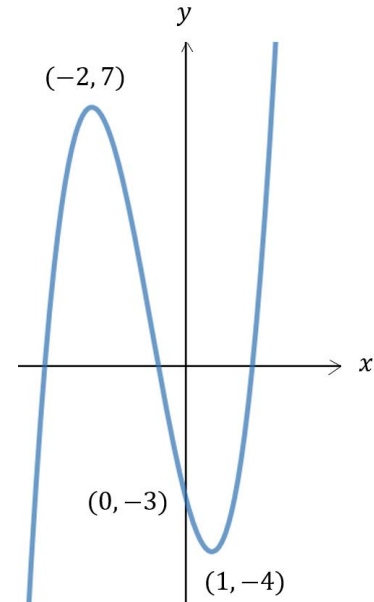
A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = f(-x)$

Your turn

A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = f(-x)$

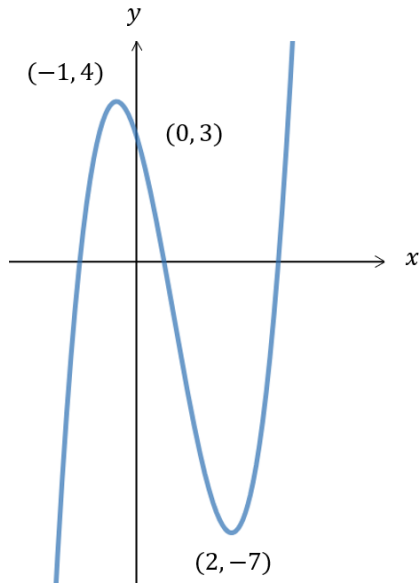
Correct sketch

New y-intercept: $(0, -3)$

New turning points: $(2, -7)$ and $(-1, 4)$

Worked example

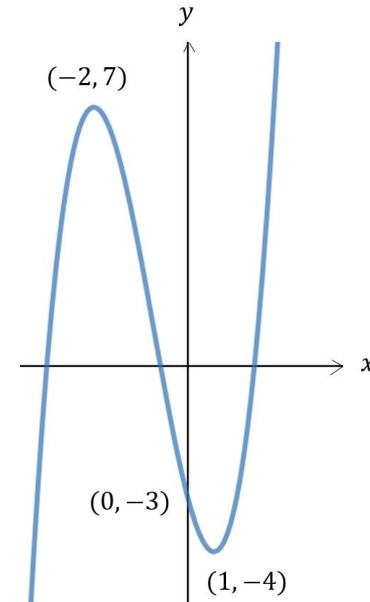
A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = f(x + 2) + 3$

Your turn

A sketch of the graph $y = f(x)$ is shown:



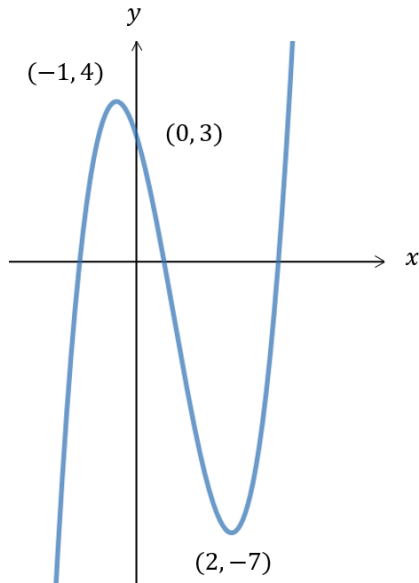
Sketch the graph of $y = f(x - 3) - 2$

Correct sketch

New turning points: $(1, 5)$ and $(4, -6)$

Worked example

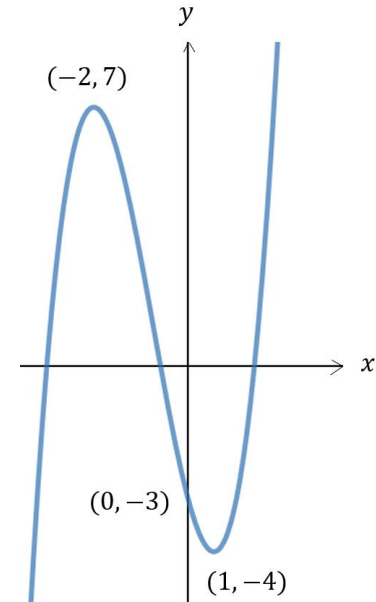
A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = -f(x) + 3$

Your turn

A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = -f(x) - 2$

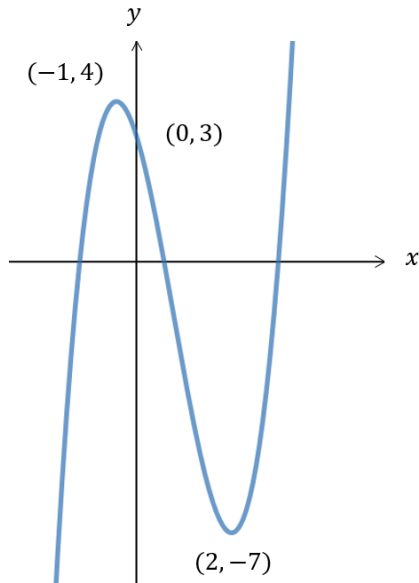
Correct sketch

New y-intercept: $(0, 1)$

New turning points: $(-2, -9)$ and $(1, 2)$

Worked example

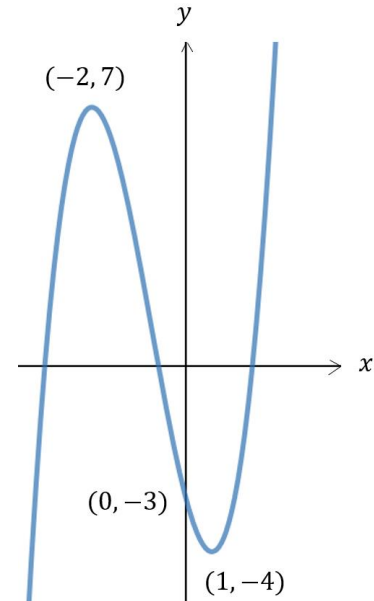
A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = f(-x) - 3$

Your turn

A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = f(-x) + 2$

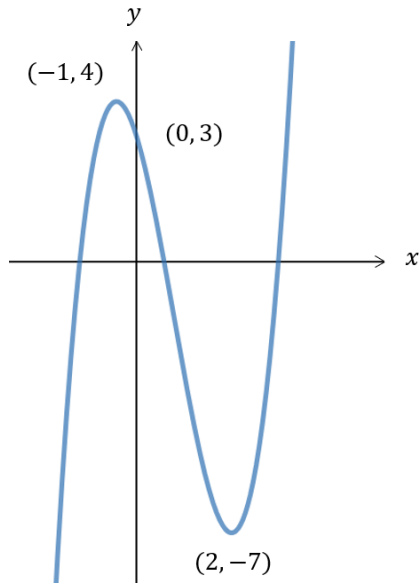
Correct sketch

New y-intercept: $(0, -1)$

New turning points: $(2, -5)$ and $(-1, 6)$

Worked example

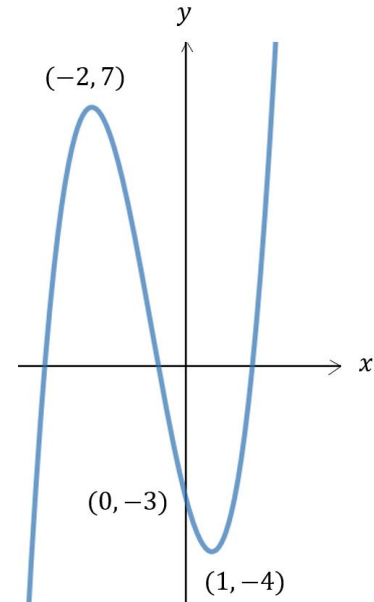
A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = 3f(x) + 2$

Your turn

A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = 2f(x) + 3$

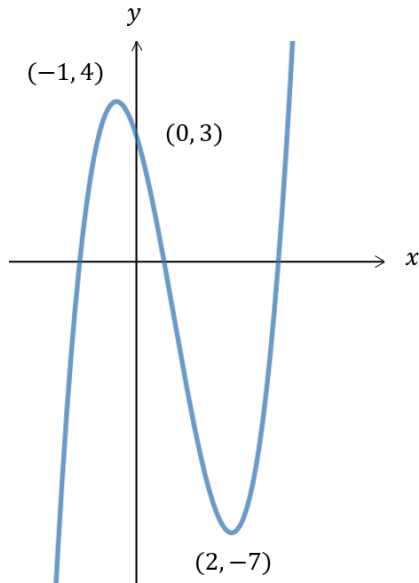
Correct sketch

New y-intercept: $(0, -3)$

New turning points: $(-2, 17)$ and $(1, -5)$

Worked example

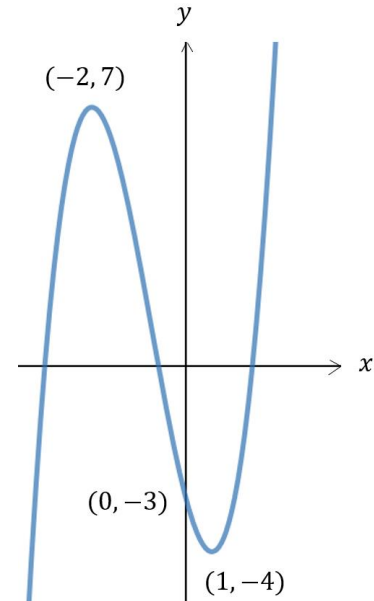
A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = f(2x) - 3$

Your turn

A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = f(3x) - 2$

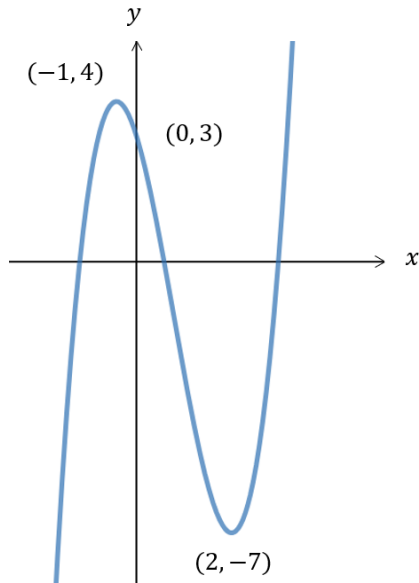
Correct sketch

New y-intercept: $(0, -5)$

New turning points: $(-\frac{2}{3}, 5)$ and $(\frac{1}{3}, -6)$

Worked example

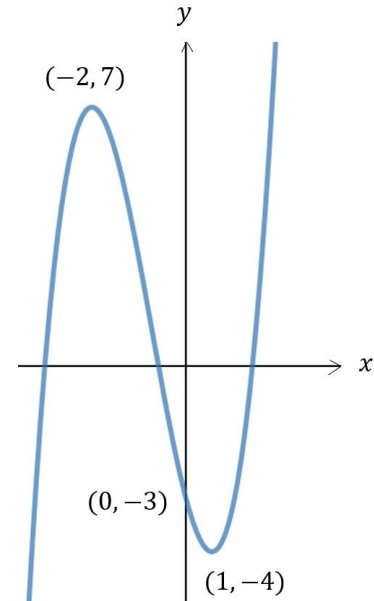
A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = -f(3x) + 2$

Your turn

A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = -f(2x) - 3$

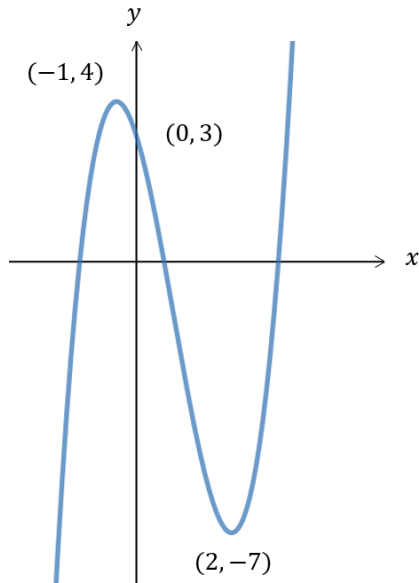
Correct sketch

New y-intercept: $(0, 0)$

New turning points: $(-1, -10)$ and $(\frac{1}{2}, 1)$

Worked example

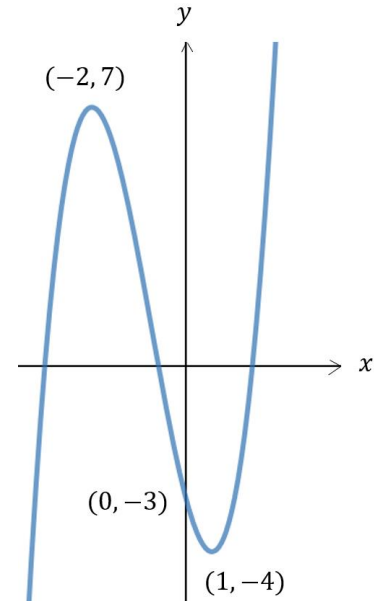
A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = 5f(x - 2) - 3$

Your turn

A sketch of the graph $y = f(x)$ is shown:



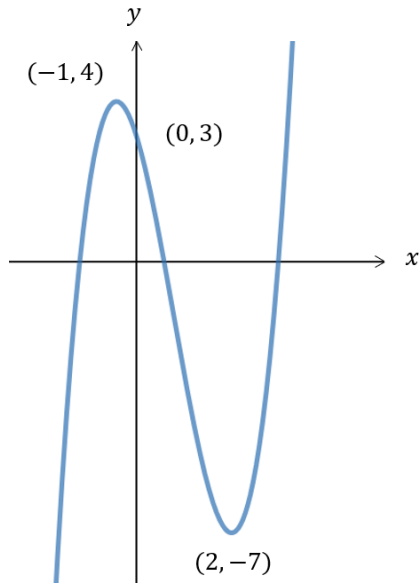
Sketch the graph of $y = 7f(x + 3) + 2$

Correct sketch

New turning points: $(-5, 51)$ and $(-2, -26)$

Worked example

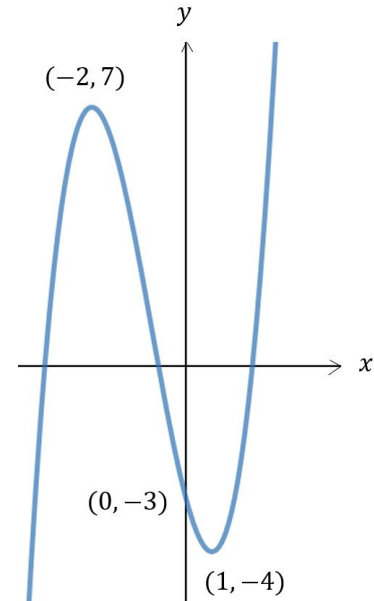
A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = -5f(x + 2) + 3$

Your turn

A sketch of the graph $y = f(x)$ is shown:



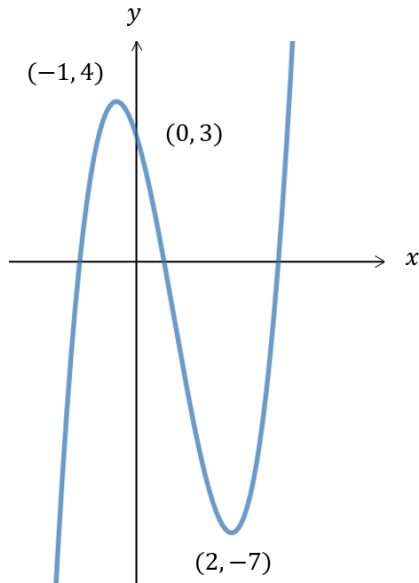
Sketch the graph of $y = -7f(x - 3) - 2$

Correct sketch

New turning points: $(1, -51)$ and $(4, 26)$

Worked example

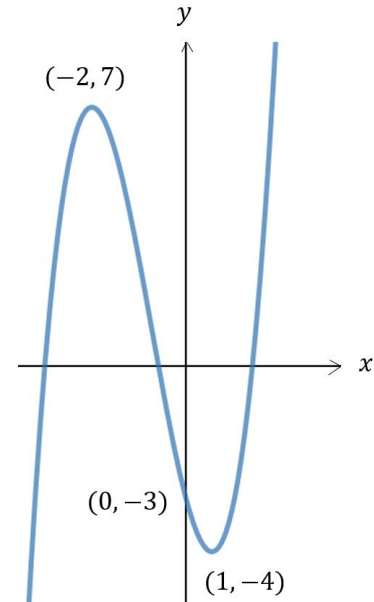
A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = |f(x)|$

Your turn

A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = |f(x)|$

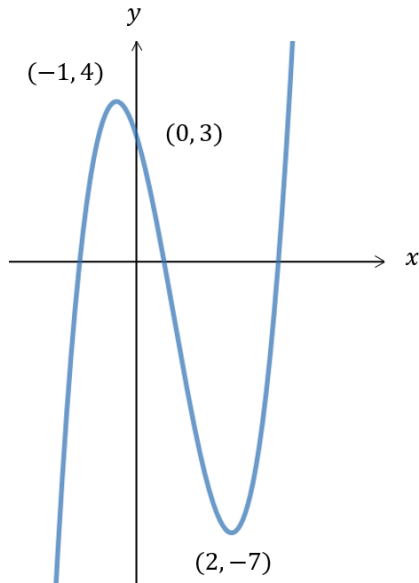
Correct sketch

New y-intercept: $(0, 3)$

New turning points: $(-2, 7)$ and $(1, 4)$

Worked example

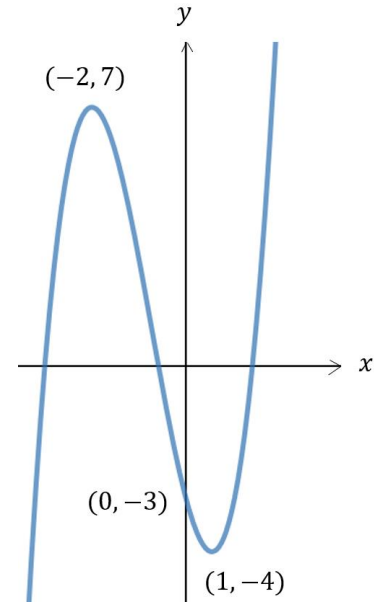
A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = |f(-x)|$

Your turn

A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = |f(-x)|$

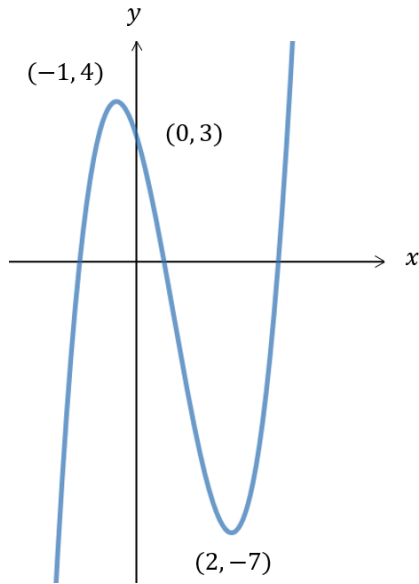
Correct sketch

New y-intercept: $(0, 3)$

New turning points: $(-1, 4)$ and $(2, 7)$

Worked example

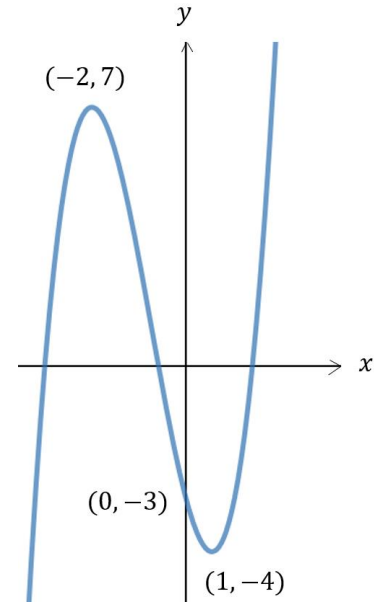
A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = f(|x|)$

Your turn

A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = f(|x|)$

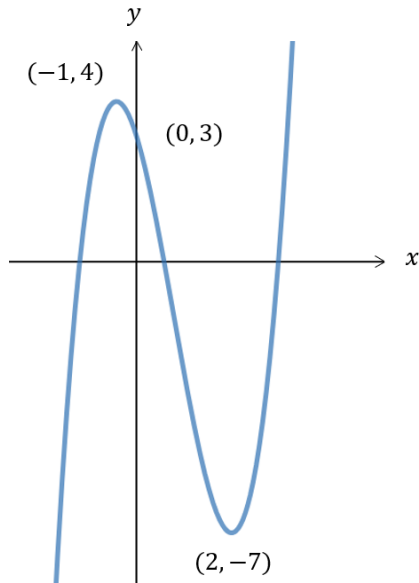
Correct sketch

New y-intercept: $(0, -3)$

New turning points: $(-1, -4)$ and $(1, -4)$

Worked example

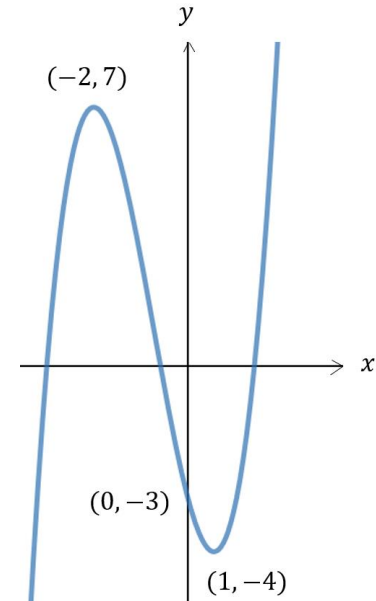
A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = -f(|x|)$

Your turn

A sketch of the graph $y = f(x)$ is shown:



Sketch the graph of $y = -f(|x|)$

Correct sketch

New y-intercept: $(0, 3)$

New turning points: $(-1, 4)$ and $(1, 4)$