

Name: _____

Note: When transforming expressions into equivalent forms, write a chain of equalities. Don't just write one expression after the next without stating the relationship between the expressions.

When solving equations, write down one equation after another. Do not cross out or write on top of an equation.

1. Let $f(x) = -2x^2 + 20x + 1$.

(a) Express f in standard form, i.e., in the form $f(x) = a(x - h)^2 + k$.

Solution:

$$\begin{aligned} f(x) &= -2(x^2 - 10x) + 1 \\ &= -2(x^2 - 10x + 25 - 25) + 1 \\ &= -2(x^2 - 10x + 25) + 50 + 1 \\ &= -2(x - 5)^2 + 51 \end{aligned}$$

(b) The graph of $f(x)$ looks like:

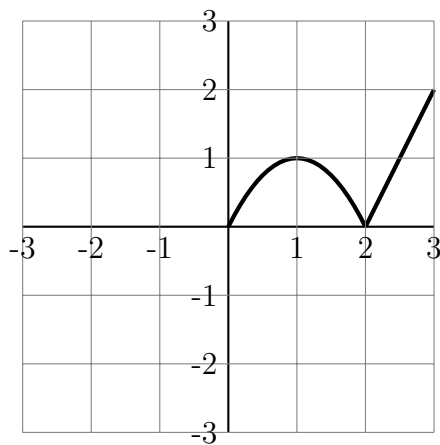


☐ something else

(c) Give the x - and y - coordinates of the extreme point of the parabola (also called the vertex of the parabola).

Solution: Since the standard form is $-2(x - 5)^2 + 51$, the extreme point of the parabola is $(5, 51)$.

2. Here is the graph of some function $f(x)$ on the domain $[0, 3]$:



Sketch the graph of $-f(x + 2)$ on the axes below:

