Worksheet 54 - Absolute Value Functions

1. If the range of $y = f(x)$ is $[-2, \infty)$, then what is the range of $y = |f(x)|$?
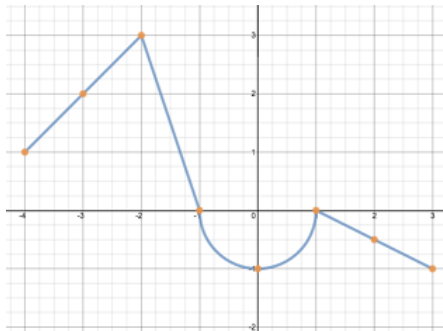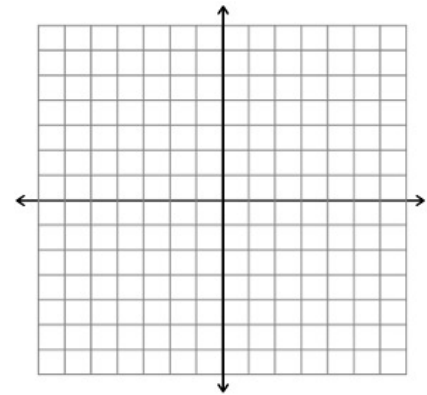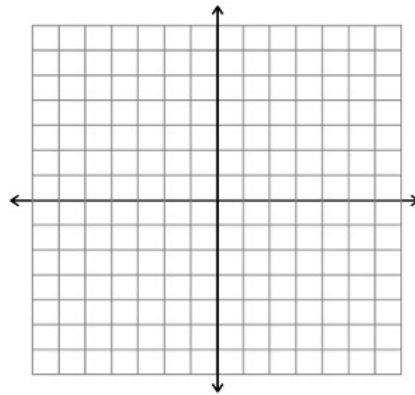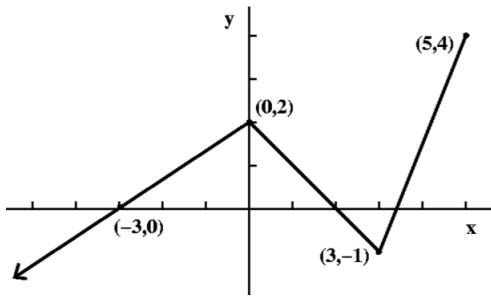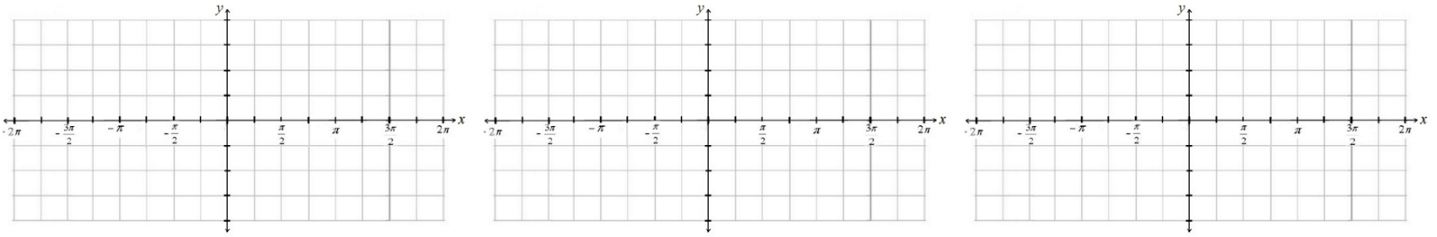
2. If the range of $y = f(x)$ is $(-9, 1)$, then what is the range of $y = |f(x)|$?

3. For each of the graphs below, $y = f(x)$. Sketch the graph of $y = |f(x)|$ and $y = f(|x|)$.
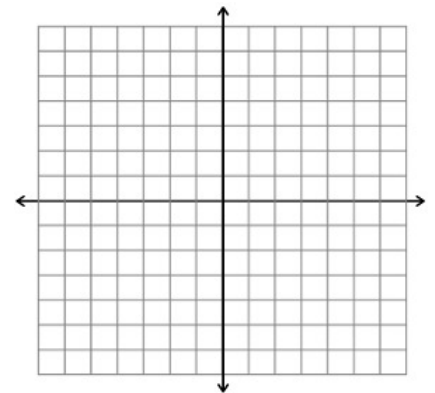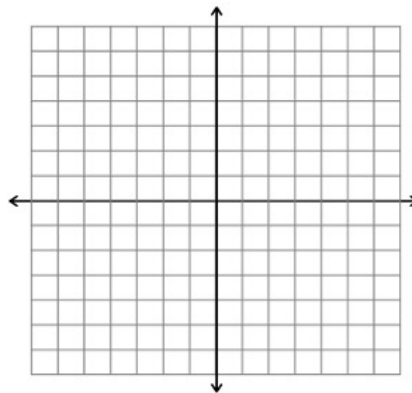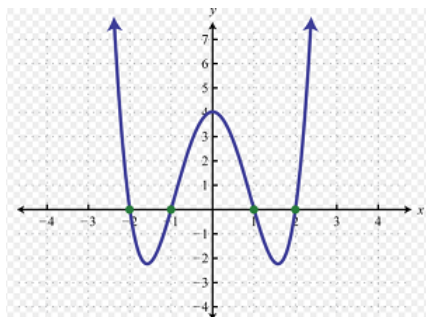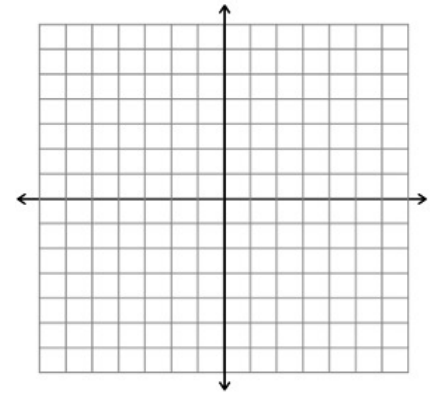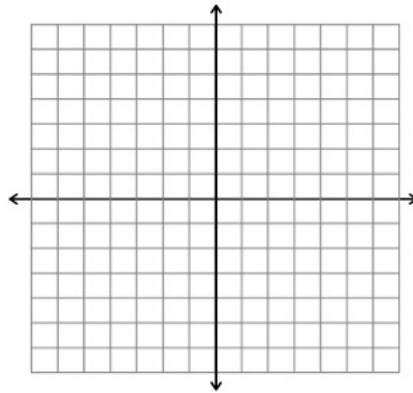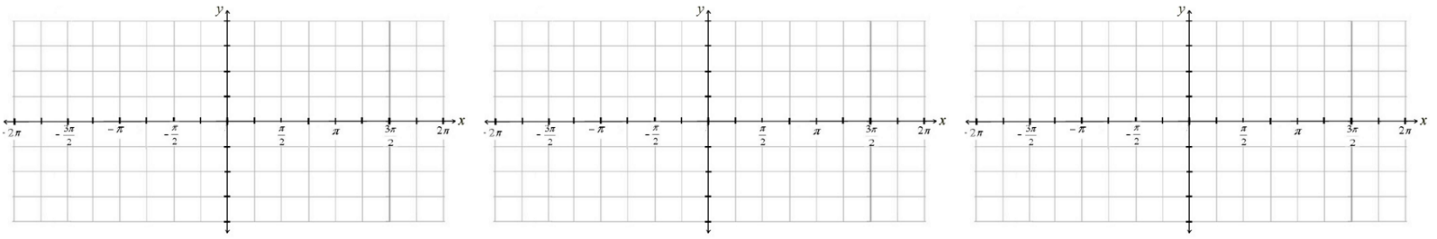
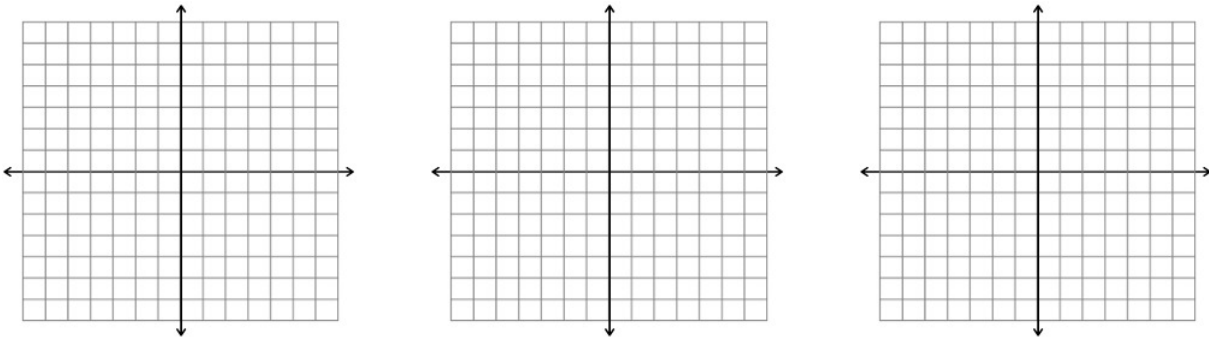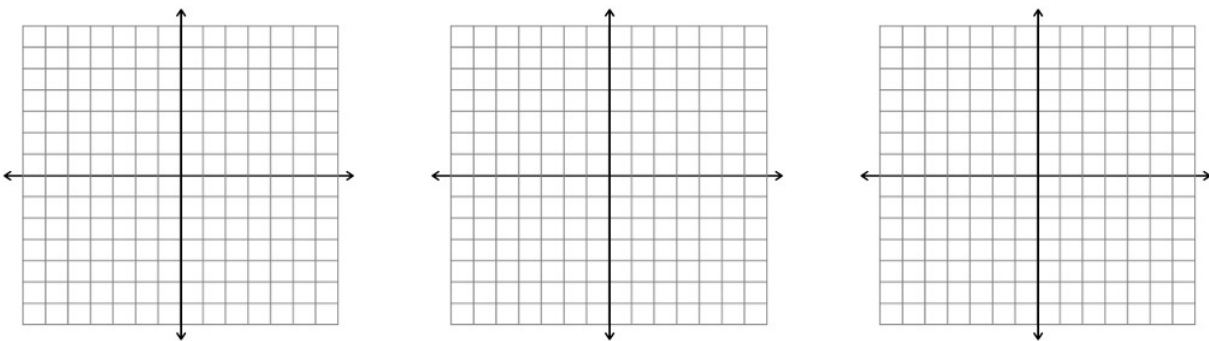4. For each function below, sketch the graphs of $y = f(x)$, $y = |f(x)|$ and $y = f(|x|)$.

(a) $f(x) = \sin(x)$

(b) $f(x) = \cos(x)$
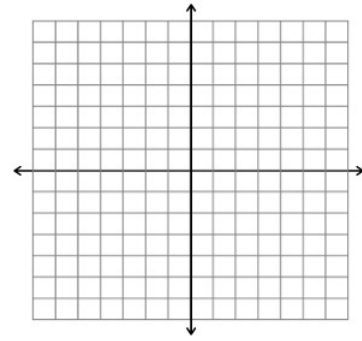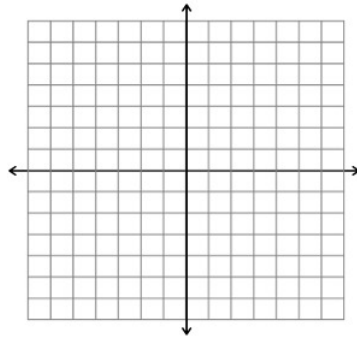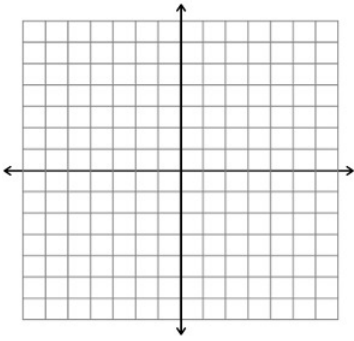
(c) $f(x) = -\frac{1}{x}$

(d) $f(x) = \sqrt[3]{x}$

5. Sketch the graphs of $y = f(x)$, $y = |f(x)|$ and $y = f(|x|)$ and give the domain and range of each.

(a) $f(x) = -x^2 + 4$

Domain:

Range:
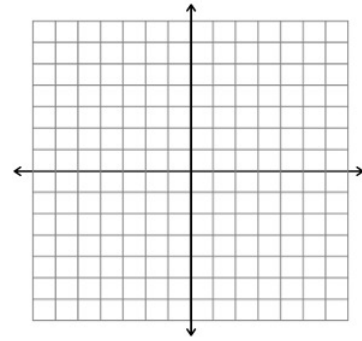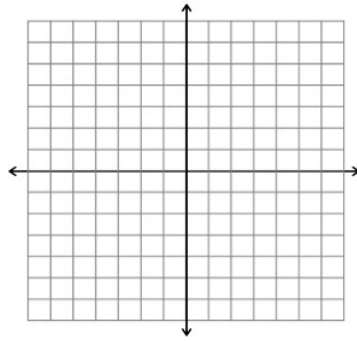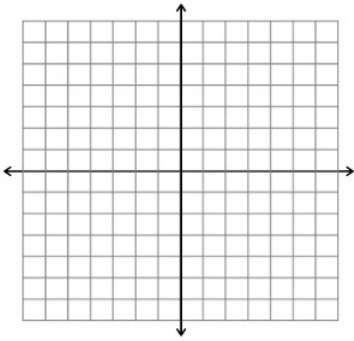
Domain:

Range:

Domain:

Range:

(b) $f(x) = -\sqrt{x+1}$
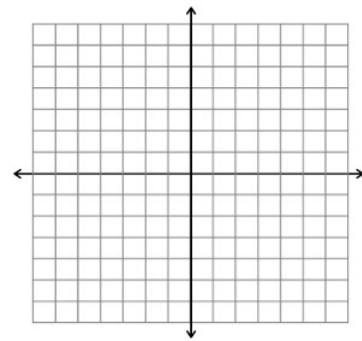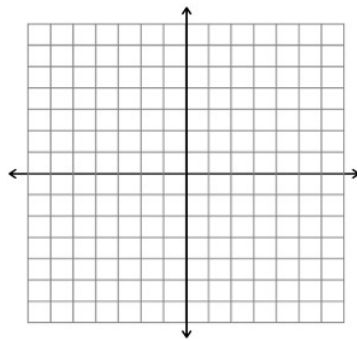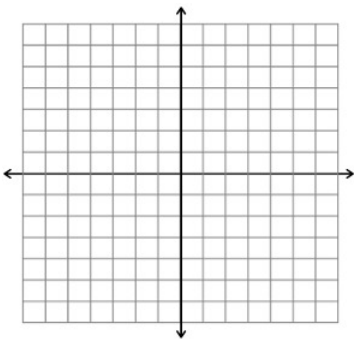
Domain:

Range:

Domain:

Range:

Domain:

Range:

(c) $f(x) = |x+2| - 2$

Domain:

Range:

Domain:

Range:

Domain:

Range:

3