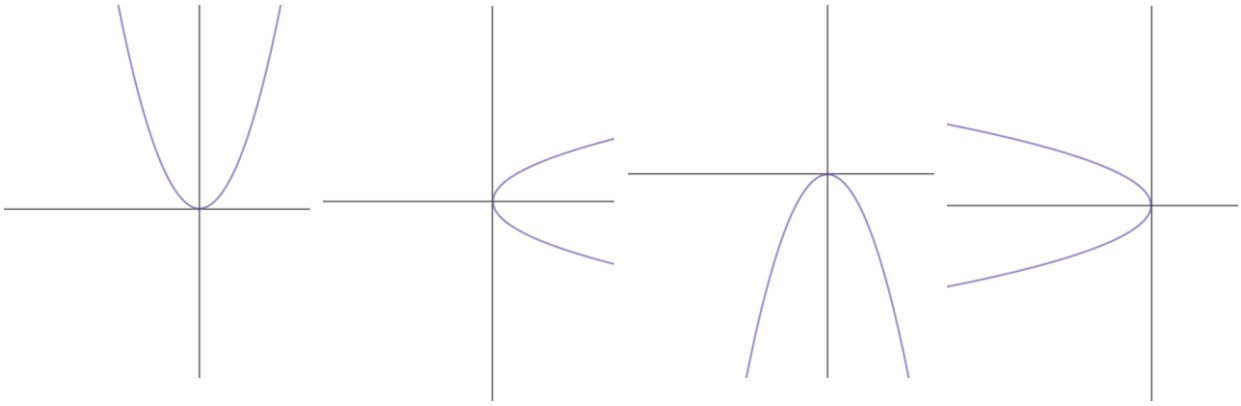
1. Give the domain and range. Is it a function?



range:
domain:
function:

range:
domain:
function:

range:
domain:
function:

range:
domain:
function:

2. Which equation goes with which plot above? Which can be solved for a single value of y?

$y = x^2$ $y = -x^2$ $x = y^2$ $x = -y^2$

3. Write the above parabolas as functions *f(x)*, if possible.

4. Are lines functions? What's the range and domain for a line?

5. Write the slope-intercept equation for a line as a function *f(x)*.

6. a) What's the domain, range, limiting behavior, and functional notation? (No computer.)

$y = |x|$ $y = -|x|$ $x = |y|$ $x = -|y|$

b) Plot on the computer. Freehand below on separate axes.

7. a) What's the domain, range, limiting behavior, and functional notation for these cubic equations? (No computer.)

$y = x^3$ $y = -x^3$ $x = y^3$ $x = -y^3$

b) Plot on the computer. Freehand below on separate axes.

8. a) What is the leading term, limiting behavior and zeros?

$f(x) = x(x+3)(x-3)$ $f(x) = x(x+2)(x-2)$ $f(x) = x(x+1)(x-1)$ $f(x) = x^3$

b) Plot on the computer. Freehand below on a single axis.

9. a) Give the leading term, limiting behavior, zeros, and multiplicity.

$f(x) = x^2 (x+2)$ $f(x) = x(x+2)^2$ $f(x) = (x+2)^3$

b) Plot on the computer. Freehand below on separate axes.

10. a) Find the zeros by plotting on a computer.

$f(x) = x^3 - 3x^2$

$f(x) = x^3 - 2x^2$

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

$f(x) = x^3 - 0x^2$

$f(x) = x^3 + 1x^2$

$f(x) = x^3 + 2x^2$

$f(x) = x^3 + 3x^2$

b) Freehand below on a single axis.

11. a) What is the limiting behavior?

as $x \rightarrow \infty$ as $x \rightarrow -\infty$

$f(x) = x^2$

$f(x) = -x^2$

$f(x) = x^4$

$f(x) = -x^4$

$f(x) = x^6$

$f(x) = -x^6$

b) Plot on the computer. Freehand below on a single axis.

12. a) What is the limiting behavior?

as $x \rightarrow \infty$ as $x \rightarrow -\infty$

$f(x) = x^3$

$f(x) = -x^3$

$f(x) = x^5$

$f(x) = -x^5$

$f(x) = x^7$

$f(x) = -x^7$

b) Plot on the computer. Freehand below on a single axis.

13. a) Freehand on separate axes using the leading term, limiting behavior, zeros, and multiplicity. Check with the computer.

$f(x) = (x+1)(x+2)(x+3)$

$f(x) = (x+1)(x+2)(x+3)(x+4)$

$f(x) = (x+1)(x+2)(x+3)(x+4)(x+5)$

$f(x) = (x+1)(x+2)(x+3)(x+4)(x+5)(x+6)$

14. a) Freehand on separate axes using the leading term, limiting behavior, zeros, and multiplicity. Check with the computer.

$f(x) = -(x-1)(x+1)^3(x+4)$

$f(x) = -(x-1)(x+1)^3(x+4)^2$