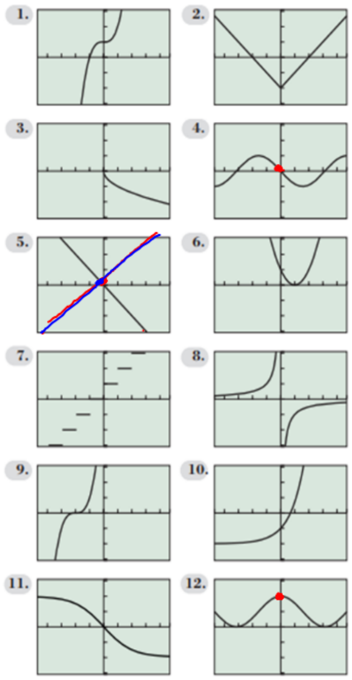
(a) $y = -\sin x$ (b) $y = \cos x + 1$ (c) $y = e^x - 2$

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

(g) $y = |x| - 2$ (h) $y = -1/x$ (i) $y = -x$

(j) $y = -\sqrt{x}$ (k) $y = \text{int}(x + 1)$

(l) $y = 2 - 4/(1 + e^{-x})$



$af(x-h) + K$

1. e up 1 $y = x^3 + 1$

2. g down 2 $y = |x| - 2$

3. j Reflection over x-axis $y = -\sqrt{x}$

4. a Reflection over x-axis $y = -\sin x$

5. i Reflection. $y = -x$

6. f moved to the right 1 $y = (x - 1)^2$

7. k. left 1 $y = \text{int}(x+1)$

8. h reflection over x-axis $y = -\frac{1}{x}$

9. d left 2 $y = (x+2)^3$ $-(-2)$

10. c down 2 $y = e^x - 2$

11. l Reflection $y = 2 - \frac{4}{1+e^{-x}}$

12. b up 1 $y = \cos x + 1$

opposite

$a\,f(x-h)^2 + K$

v. stretch
v. shrink
Reflection

$(x+5)^2$

$(x-(-5))^2$

$h = -5$ left 5

In Exercises 29–34, use your graphing calculator to produce a graph of the function. Then determine the domain and range of the function by looking at its graph.

29. $f(x) = x^2 - 5$ **30.** $g(x) = |x - 4|$

31. $h(x) = \ln(x + 6)$ **32.** $k(x) = 1/x + 3$

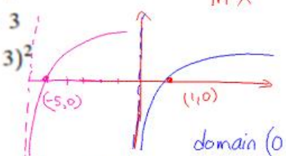
33. $s(x) = \text{int}(x/2)$ **34.** $p(x) = (x + 3)^2$

6 left 6

Domain (∞, ∞)
Range $\{I\}$
set of integers.

left 3
Domain $(-\infty, \infty)$
Range $[0, \infty)$

ln x



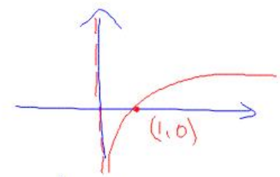
domain $(0, \infty)$
Range $(-\infty, \infty)$

domain $(-6, \infty)$
Range $(-\infty, \infty)$

29. domain $(-\infty, \infty)$ down 5
Range $[-5, \infty)$

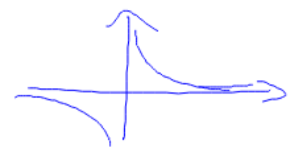
30. domain $(-\infty, \infty)$ shifted 4 to the right
Range $[0, \infty)$

31. domain $(-6, \infty)$ shifted left 6
Range $(-\infty, \infty)$



32. domain $(-\infty, 0) \cup (0, \infty)$ shifted up 3
Range $(-\infty, 3) \cup (3, \infty)$

$\ln 1 = 0$



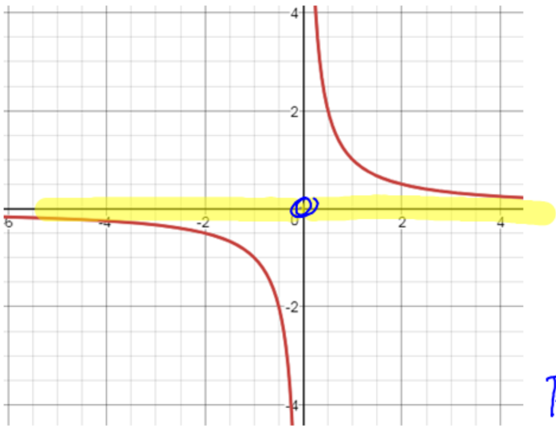
33. domain $(-\infty, \infty)$
Range $\{I\}$

int x

int $\frac{x}{2}$

34. domain $(-\infty, \infty)$ left 3.
Range $[0, \infty)$

Important Language



- The graph of y=1/x come apart at x=0; it has an infinite discontinuity at x=0
- Does x=0 belong to the domain of this function?
- Thus 1/x is continuous for every point in its domain.

Rational

Domain $(-\infty, 0) \cup (0, \infty)$

Range $(-\infty, 0) \cup (0, \infty)$