

More review for final

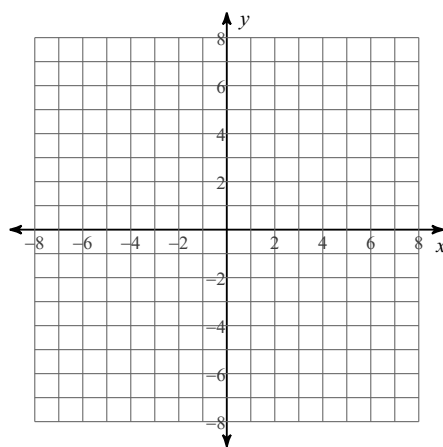
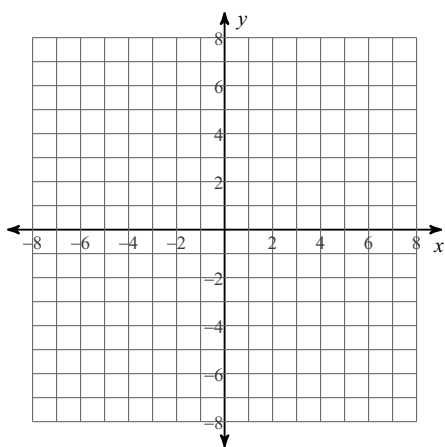
Identify the domain and range of each.

$$1) y = -\frac{2}{3}\sqrt{x+3} - 3$$

Identify the points of discontinuity, holes, vertical asymptotes, x-intercepts, horizontal asymptote, and domain of each. Then sketch the graph.

$$2) f(x) = \frac{1}{-x+1}$$

$$3) f(x) = \frac{x-4}{3x+3}$$



Divide.

$$4) (4b^4 - 2b^3 - 6b^2 - 22b + 23) \div (2b - 4)$$

Factor each completely.

$$5) 35x^5 + 150x^3 + 40x$$

$$6) 3x^4 - 34x^2 + 80$$

$$7) 5x^4 - 33x^2 + 40$$

$$8) 8u^3 - 125$$

Describe the end behavior of each function.

$$9) f(x) = x^3 - 2x^2$$

$$10) f(x) = -x^2 - 2x + 3$$

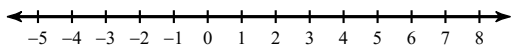
Solve each equation.

11) $3|3x - 1| = 93$

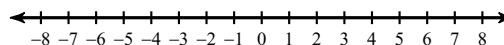
12) $|4 - 10p| - 3 = 101$

Solve each inequality and graph its solution.

13) $|2x - 9| < -23$

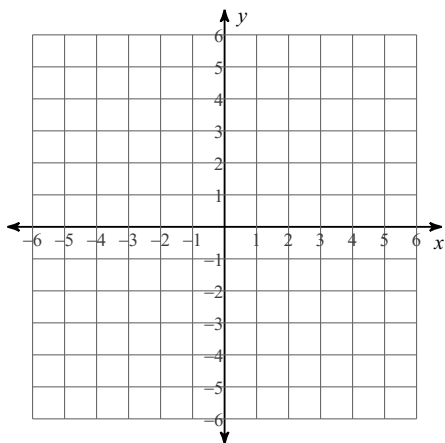


14) $|9n + 1| \geq 35$

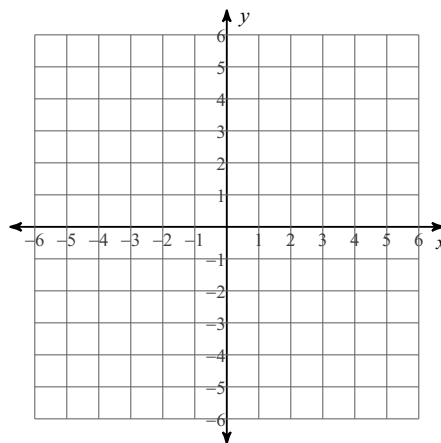


Graph each equation.

15) $y = -3|-2x - 1| + 4$

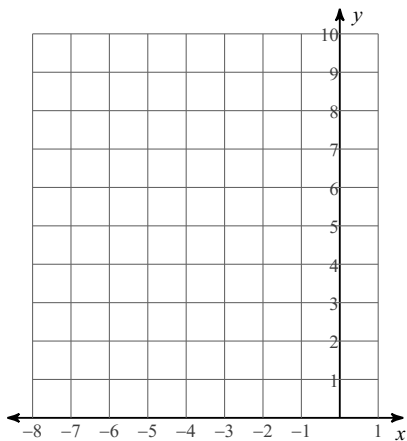


16) $y = -3|-2x + 2|$

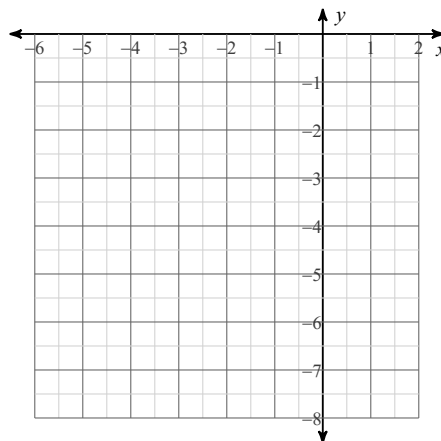


Sketch the graph of each function.

17) $y = 2x^2 + 16x + 33$



18) $y = -x^2 - 2x - 4$



Solve each equation by taking square roots.

19) $p^2 + 7 = 23$

20) $x^2 - 4 = 19$

Solve each equation with the quadratic formula.

21) $7n^2 = -7$

22) $v^2 = -7v + 8$

Solve each equation. Remember to check for extraneous solutions.

23) $1 - \sqrt{7k + 9} = \sqrt{7k + 4}$

24) $\sqrt{-3 - 7x} = 2 + \sqrt{5 - x}$

Solve each equation. Round your answers to the nearest ten-thousandth.

25) $-2 \cdot 4^{v+10} = -68$

26) $6^{n-10} - 9 = 40$

Solve each equation.

27) $\log_6(x - 1) - \log_6 x = 2$

28) $\log 4 + \log 3x = 2$

Perform the indicated operation.

29) $g(a) = -3a + 3$
 $h(a) = 3a - 3$
Find $g(a) - h(a)$

30) $f(n) = n^2 + n$
 $g(n) = -4n + 1$
Find $f(n) + g(n)$

31) $g(t) = t + 2$
 $f(t) = t + 5$
Find $g(-2) \cdot f(-2)$

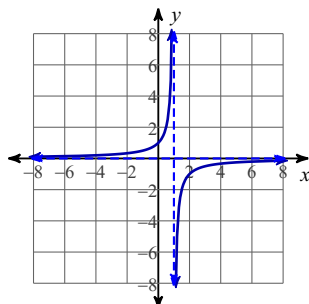
32) $h(x) = 3x - 1$
 $g(x) = 2x + 2$
Find $h(g(0))$

33) $g(n) = 3n + 2$
 $h(n) = n^2 + 2n$
Find $g(h(4n))$

Answers to More review for final

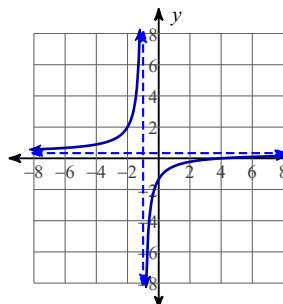
- 1) Domain: $x \geq -3$
Range: $y \leq -3$

2)



Discontinuities: 1
Vertical Asym.: $x = 1$
Holes: None
Horz. Asym.: $y = 0$
X-intercepts: None
Domain:
All reals except 1

3)



Discontinuities: -1
Vertical Asym.: $x = -1$
Holes: None
Horz. Asym.: $y = \frac{1}{3}$
X-intercepts: 4
Domain:
All reals except -1

$$4) 2b^3 + 3b^2 + 3b - 5 + \frac{3}{2b - 4}$$

5) $5x(7x^2 + 2)(x^2 + 4)$ 6) $(3x^2 - 10)(x^2 - 8)$ 7) $(5x^2 - 8)(x^2 - 5)$

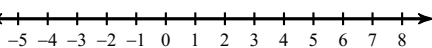
8) $(2u - 5)(4u^2 + 10u + 25)$ 9) Falls to the left. Rises to the right

10) Falls to the left. Falls to the right

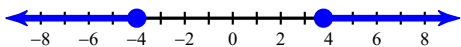
$$11) \left\{ \frac{32}{3}, -10 \right\}$$

$$12) \left\{ -10, \frac{54}{5} \right\}$$

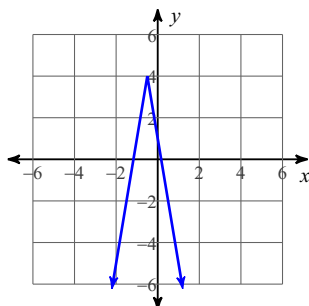
13) No solution. :



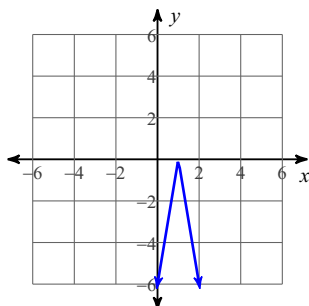
14) $n \geq \frac{34}{9}$ or $n \leq -4$:



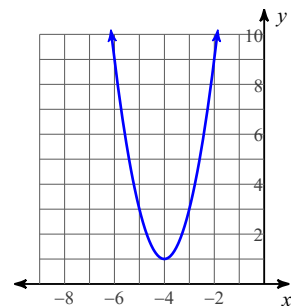
15)



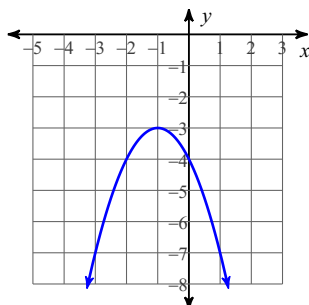
16)



17)



18)



19) $\{4, -4\}$

20) $\{\sqrt{23}, -\sqrt{23}\}$

21) $\{i, -i\}$

22) $\{1, -8\}$

23) No solution.

24) $\{-4\}$

25) -7.4563

26) 12.1721

27) No solution.

28) $\left\{ \frac{25}{3} \right\}$

29) $-6a + 6$

30) $n^2 - 3n + 1$

31) 0

32) 5

33) $48n^2 + 24n + 2$