

## Worksheet 3A

For each problem, find the x-coordinates of the critical points, if they exist.

1)  $y = \frac{x^2}{2} - 2$

2)  $y = -2x^2 - 8x - 4$

3)  $y = \frac{x^2}{2} - 3x + \frac{11}{2}$

4)  $y = x^2 - 3$

$$5) y = -\frac{6x^2 - 6}{x^3}$$

$$6) y = \frac{1}{x - 2}$$

$$7) y = -\frac{3x}{x + 2}$$

$$8) y = \frac{x^2}{4x + 4}$$

$$9) y = \frac{x}{x^2 - 16}$$

$$10) y = (x + 1)^{\frac{2}{3}}$$

$$11) y = \frac{1}{x + 1}$$

$$12) y = (6x + 18)^{\frac{1}{2}}$$

$$13) y = \frac{1}{x-3}$$

$$14) y = -(4x+8)^{\frac{1}{2}}$$

$$15) y = (-7x+42)^{\frac{1}{2}}$$

$$16) y = \frac{x^3}{6} + \frac{x^2}{3}$$

$$17) y = (x - 1)^{\frac{1}{3}}$$

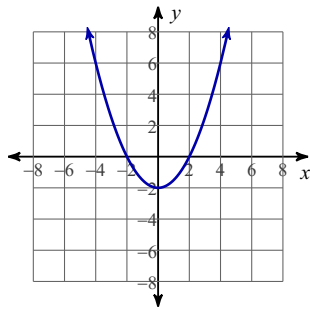
$$18) y = \frac{5x^2 - 5}{x^3}$$

$$19) y = \frac{x^3}{x^2 - 1}$$

$$20) y = \frac{3x^2 - 3}{x^3}$$

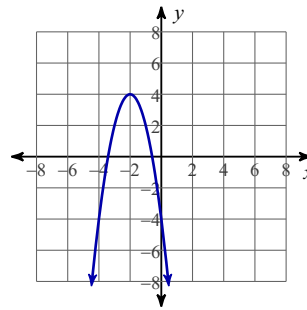
# Answers to Worksheet 3A (ID: 1)

1)



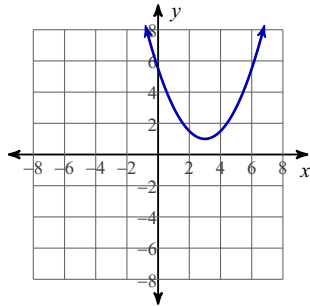
Critical point at:  $x = 0$

2)



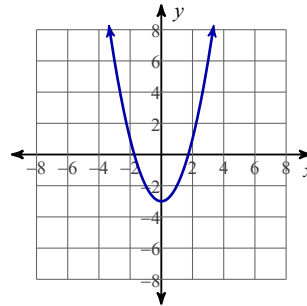
Critical point at:  $x = -2$

3)



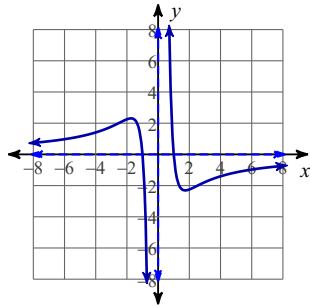
Critical point at:  $x = 3$

4)



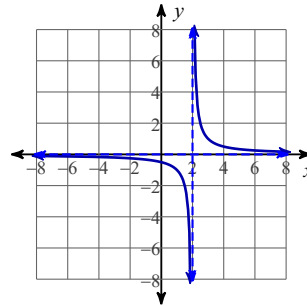
Critical point at:  $x = 0$

5)



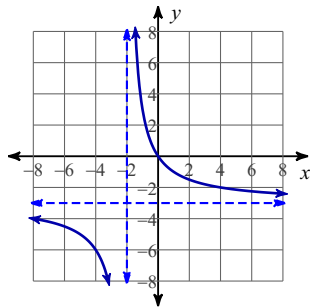
Critical points at:  $x = -\sqrt{3}, \sqrt{3}$

6)



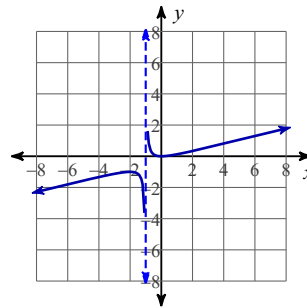
No critical points exist.

7)



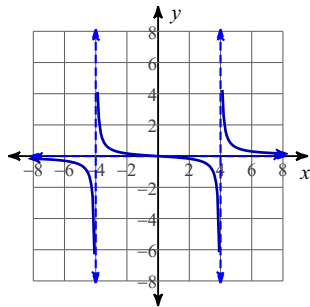
No critical points exist.

8)



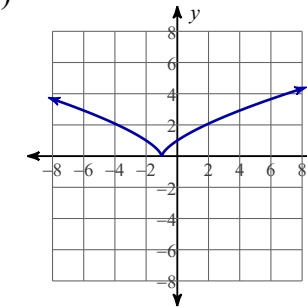
Critical points at:  $x = -2, 0$

9)



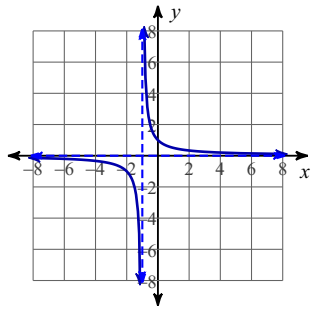
No critical points exist.

10)



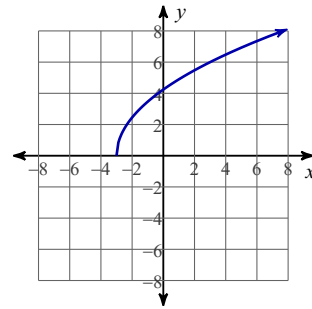
Critical point at:  $x = -1$

11)



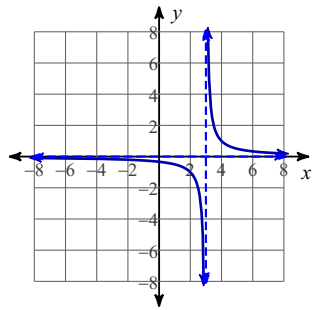
No critical points exist.

12)



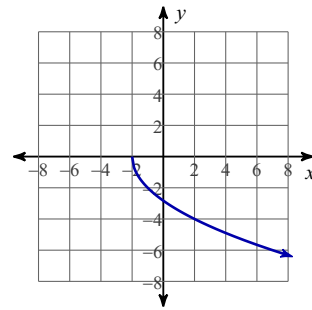
Critical point at:  $x = -3$

13)



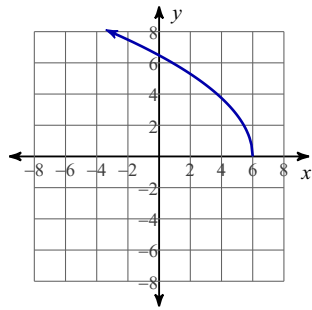
No critical points exist.

14)



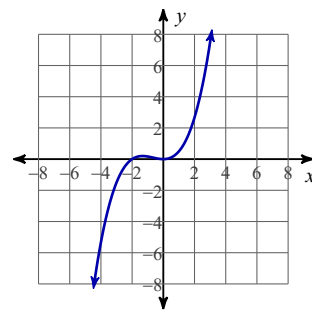
Critical point at:  $x = -2$

15)



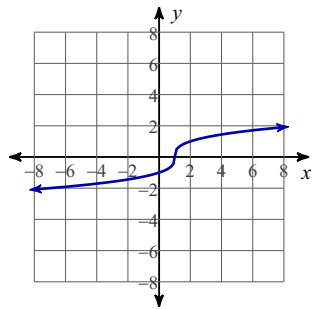
Critical point at:  $x = 6$

16)



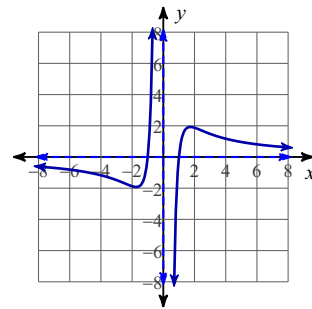
Critical points at:  $x = -\frac{4}{3}, 0$

17)



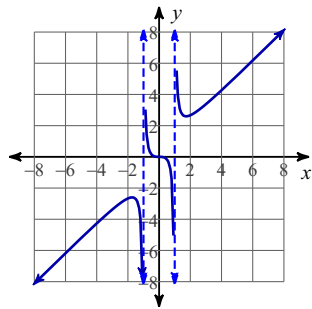
Critical point at:  $x = 1$

18)



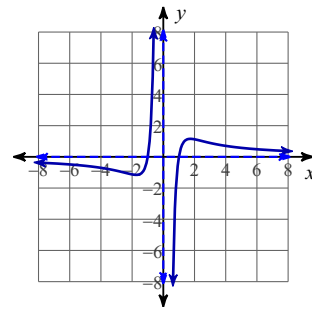
Critical points at:  $x = -\sqrt{3}, \sqrt{3}$

19)



Critical points at:  $x = -\sqrt{3}, 0, \sqrt{3}$

20)



Critical points at:  $x = -\sqrt{3}, \sqrt{3}$