

## 9-5, 9-6 Continued Work with Rad. Ex HW

© 2011 Kuta Software LLC. All rights reserved.

**Simplify each and state the excluded values.**

1)  $\frac{x^2 - 6x - 27}{2x^3 + 6x^2}$

2)  $\frac{n^2 - n - 6}{n^2 - 6n - 16}$

**Simplify each expression.**

3)  $\frac{7a}{10} \cdot \frac{10a - 20}{a^2 - 4a + 4}$

4)  $\frac{10p^2}{p - 7} \div \frac{1}{p^2 - 8p + 7}$

5)  $\frac{v + 5}{3v^2 + 17v + 20} - \frac{5v}{3v^2 + 17v + 20}$

6)  $\frac{n + 1}{n^2 + n - 30} + \frac{n + 2}{n^2 + n - 30}$

7)  $\frac{6}{2x} - \frac{x + 6}{10x + 12}$

8)  $\frac{2}{x - 4} - \frac{4x}{x - 6}$

9)  $\frac{b + 2}{2b + 12} - \frac{5}{2}$

10)  $\frac{4x}{4x^2 - 4x} + \frac{x + 4}{2x}$

**Solve each equation. Remember to check for extraneous solutions.**

11)  $\frac{6p + 6}{p^2} = \frac{p - 3}{p^2} + \frac{2}{p^2}$

12)  $\frac{1}{n} = \frac{6}{n} + \frac{n + 6}{n^2}$

13)  $\frac{1}{m + 3} + 6 = \frac{5}{m + 3}$

14)  $\frac{1}{r - 2} - \frac{1}{r^2 - 8r + 12} = \frac{4r + 16}{r^2 - 8r + 12}$

15)  $\frac{5}{x - 4} + 3 = \frac{1}{x - 4}$

16)  $\frac{1}{x - 2} = x + 2 + \frac{4}{x - 2}$

**Simplify.**

17)  $(343x^3)^{\frac{4}{3}}$

**Write each expression in radical form.**

18)  $(10x)^{\frac{5}{6}}$

Write each expression in exponential form.

19)  $(\sqrt[3]{2n})^5$

20)  $\sqrt{7n}$

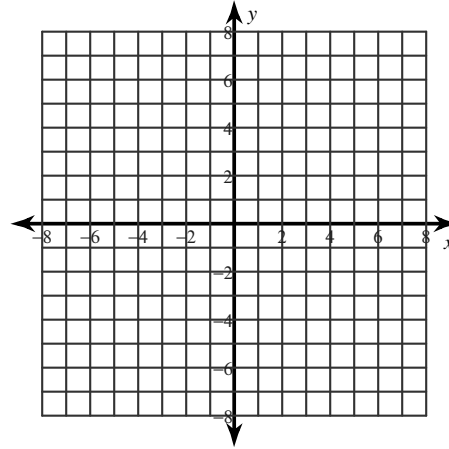
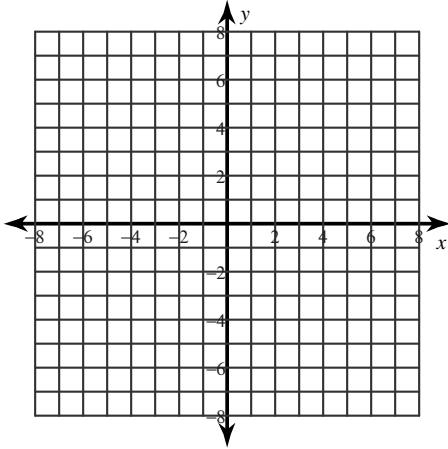
Solve each equation by completing the square.

21)  $x^2 + 12x + 16 = -4$

Graph each function.

22)  $f(x) = \frac{x^3 - 4x^2 + 3x}{4x^2 - 8x}$

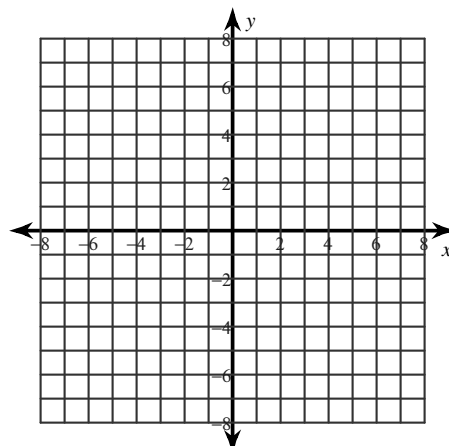
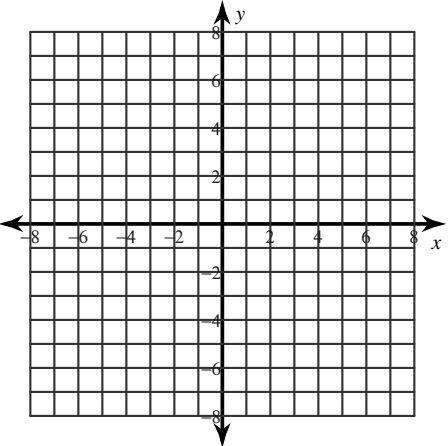
23)  $f(x) = \frac{x^3 + 2x^2 - 8x}{-2x^2 - 4x + 6}$



Identify the vertex and axis of symmetry of each. Then sketch the graph.

24)  $y = -x^2 + 2x + 3$

25)  $y = -(x + 5)^2 + 1$



## 9-5, 9-6 Continued Work with Rad. Ex HW

© 2011 Kuta Software LLC. All rights reserved.

**Simplify each and state the excluded values.**

1)  $\frac{x^2 - 6x - 27}{2x^3 + 6x^2}$

$$\frac{x-9}{2x^2}; \{0, -3\}$$

2)  $\frac{n^2 - n - 6}{n^2 - 6n - 16}$

$$\frac{n-3}{n-8}; \{-2, 8\}$$

**Simplify each expression.**

3)  $\frac{7a}{10} \cdot \frac{10a-20}{a^2-4a+4} \cdot \frac{7a}{a-2}$

4)  $\frac{10p^2}{p-7} \div \frac{1}{p^2-8p+7}$

$$10p^2(p-1)$$

5)  $\frac{v+5}{3v^2+17v+20} - \frac{5v}{3v^2+17v+20}$

$$\frac{-4v+5}{3v^2+17v+20}$$

6)  $\frac{n+1}{n^2+n-30} + \frac{n+2}{n^2+n-30}$

$$\frac{2n+3}{n^2+n-30}$$

7)  $\frac{6}{2x} - \frac{x+6}{10x+12}$

$$\frac{24x+36-x^2}{2x(5x+6)}$$

8)  $\frac{2}{x-4} - \frac{4x}{x-6}$

$$\frac{18x-12-4x^2}{(x-4)(x-6)}$$

9)  $\frac{b+2}{2b+12} - \frac{5}{2}$

$$\frac{-2b-14}{b+6}$$

10)  $\frac{4x}{4x^2-4x} + \frac{x+4}{2x}$

$$\frac{5x+x^2-4}{2x(x-1)}$$

**Solve each equation. Remember to check for extraneous solutions.**

11)  $\frac{6p+6}{p^2} = \frac{p-3}{p^2} + \frac{2}{p^2} \left\{ -\frac{7}{5} \right\}$

12)  $\frac{1}{n} = \frac{6}{n} + \frac{n+6}{n^2}$

$$\{-1\}$$

13)  $\frac{1}{m+3} + 6 = \frac{5}{m+3} \left\{ -\frac{7}{3} \right\}$

14)  $\frac{1}{r-2} - \frac{1}{r^2-8r+12} = \frac{4r+16}{r^2-8r+12} \left\{ -\frac{23}{3} \right\}$

15)  $\frac{5}{x-4} + 3 = \frac{1}{x-4} \left\{ \frac{8}{3} \right\}$

16)  $\frac{1}{x-2} = x+2 + \frac{4}{x-2}$

$$\{-1, 1\}$$

**Simplify.**

17)  $(343x^3)^{\frac{4}{3}}$   
 $2401x^4$

**Write each expression in radical form.**

18)  $(10x)^{\frac{5}{6}}$   
 $(\sqrt[6]{10x})^5$

Write each expression in exponential form.

$$19) (\sqrt[3]{2n})^5$$
$$(2n)^{\frac{5}{3}}$$

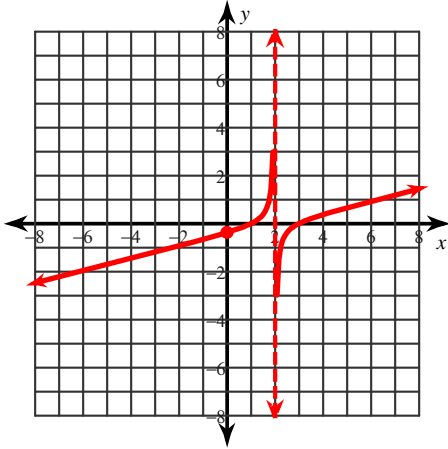
$$20) \sqrt{7n}$$
$$(7n)^{\frac{1}{2}}$$

Solve each equation by completing the square.

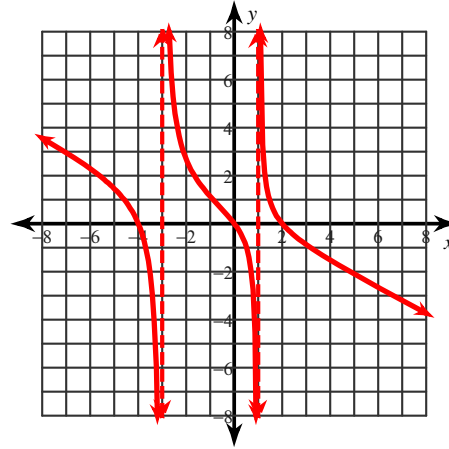
$$21) x^2 + 12x + 16 = -4$$
$$\{-2, -10\}$$

Graph each function.

$$22) f(x) = \frac{x^3 - 4x^2 + 3x}{4x^2 - 8x}$$

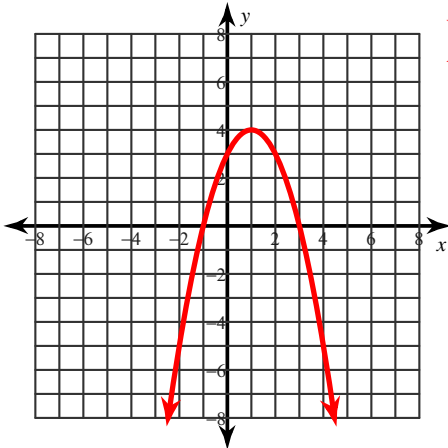


$$23) f(x) = \frac{x^3 + 2x^2 - 8x}{-2x^2 - 4x + 6}$$



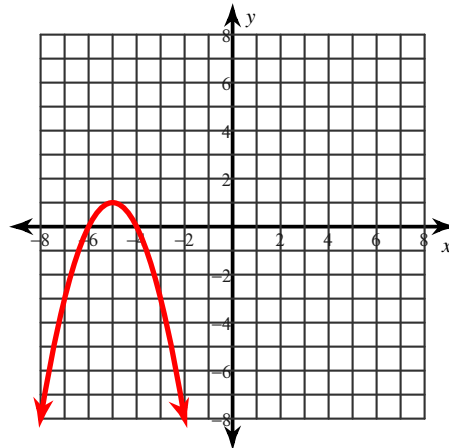
Identify the vertex and axis of symmetry of each. Then sketch the graph.

$$24) y = -x^2 + 2x + 3$$



Vertex: (1, 4)  
Axis of Sym.: x = 1

$$25) y = -(x + 5)^2 + 1$$



Vertex: (-5, 1)  
Axis of Sym.: x = -5