

# Chapter P

**ALGEBRA II REVIEW****Factor each expression completely.**

1.  $9x^2 - 4$

2.  $x^2 - 7x + 10$

3.  $x^2 + 7x - 8$

4.  $5x^2 + 4x - 12$

5.  $2x^2 - 9x + 4$

6.  $x^2 + 2x - 35$

7.  $x^2 + 6x + 5$

8.  $10x^2 - 17x + 3$

9.  $x^2 - 13x - 48$

10.  $2x^2 - 98$

11.  $8x^3 + 1$

12.  $x^2 + 5x - 24$

13.  $x^2 - x - 6$

14.  $9x^2 - 1$

15.  $3x^2 - 2x$

**State the domain using interval notation.**

16.  $y = \frac{5}{4x^2 - 25}$

17.  $y = \sqrt{2x+8}$

18.  $y = x^2 + 3x - 4$

19.  $y = \frac{1}{8x^2 + 4x}$

20.  $y = 5^x$

21.  $y = \sqrt{2x-6}$

**Solve each equation by factoring.**

22.  $x^2 - 18x - 40 = 0$

23.  $x^2 - 49 = 0$

24.  $5x^2 = 15x$

25.  $2x^2 + x = 10$

26.  $5x^2 + 2 = -7x$

27.  $x^2 - 16 = 0$

28.  $6x^2 + 18x = 0$

29.  $x^2 - 3x - 4 = 0$

30.  $x^2 + 9x^2 + 20 = 0$

31.  $4x^2 + 5 + 9x = 0$

32.  $x^2 - 6x = -8$

33.  $2x^2 - 3x = 0$

34.  $25x^2 - 9 = 0$

35.  $6x^2 + 2 = 7x$

36.  $4x^2 + 2 = 6x$



## APPENDIX A.3 EXERCISES

In Exercises 1–8, rewrite as a single fraction.

1.  $\frac{5}{9} + \frac{10}{9}$

3.  $\frac{20}{21} \cdot \frac{9}{22}$

5.  $\frac{2}{3} \div \frac{4}{5}$

7.  $\frac{1}{14} + \frac{4}{15} - \frac{5}{21}$

2.  $\frac{17}{32} - \frac{9}{32}$

4.  $\frac{33}{25} \cdot \frac{20}{77}$

6.  $\frac{9}{4} \div \frac{15}{10}$

8.  $\frac{1}{6} + \frac{6}{35} - \frac{4}{15}$

In Exercises 9–18, find the domain of the algebraic expression.

9.  $5x^2 - 3x - 7$

11.  $\sqrt{x-4}$

13.  $\frac{2x+1}{x^2+3x}$

15.  $\frac{x}{x-1}, x \neq 2$

17.  $x^2 + x^{-1}$

10.  $2x - 5$

12.  $\frac{2}{\sqrt{x+3}}$

14.  $\frac{x^2-2}{x^2-4}$

16.  $\frac{3x-1}{x-2}, x \neq 0$

18.  $x(x+1)^{-2}$

In Exercises 19–26, find the missing numerator or denominator so that the two rational expressions are equal.

19.  $\frac{2}{3x} = \frac{?}{12x^3}$

21.  $\frac{x-4}{x} = \frac{x^2-4x}{?}$

23.  $\frac{x+3}{x-2} = \frac{?}{x^2+2x-8}$

25.  $\frac{x^2-3x}{?} = \frac{x-3}{x^2+2x}$

20.  $\frac{5}{2y} = \frac{15y}{?}$

22.  $\frac{x}{x+2} = \frac{?}{x^2-4}$

24.  $\frac{x-4}{x+5} = \frac{x^2-x-12}{?}$

26.  $\frac{?}{x^2-9} = \frac{x^2+x-6}{x-3}$

In Exercises 27–32, consider the original fraction and its reduced form from the specified example. Explain why the given restriction is needed on the reduced form.

27. Example 3a,  $x \neq 2, x \neq -7$

28. Example 3b,  $x \neq -1, x \neq 2$

29. Example 4, none

30. Example 5,  $x \neq 0$

31. Example 6,  $x \neq 3$

32. Example 7,  $a \neq b$

In Exercises 33–44, write the expression in reduced form.

33.  $\frac{18x^3}{15x}$

35.  $\frac{x^3}{x^2-2x}$

37.  $\frac{z^2-3z}{9-z^2}$

39.  $\frac{y^2-y-30}{y^2-3y-18}$

41.  $\frac{8z^3-1}{2z^2+5z-3}$

34.  $\frac{75y^2}{9y^4}$

36.  $\frac{2y^2+6y}{4y+12}$

38.  $\frac{x^2+6x+9}{x^2-x-12}$

40.  $\frac{y^3+4y^2-21y}{y^2-49}$

42.  $\frac{2z^3+6z^2+18z}{z^3-27}$

43.  $\frac{x^3+2x^2-3x-6}{x^3+2x^2}$

In Exercises 45–62, simplify.

45.  $\frac{3}{x-1} \cdot \frac{x^2-1}{9}$

47.  $\frac{x+3}{x-1} \cdot \frac{1-x}{x^2-9}$

49.  $\frac{x^3-1}{2x^2} \cdot \frac{4x}{x^2+x+1}$

51.  $\frac{2y^2+9y-5}{y^2-25} \cdot \frac{y-5}{2y^2-y}$

53.  $\frac{1}{2x} \div \frac{1}{4}$

55.  $\frac{x^2-3x}{14y} \div \frac{2xy}{3y^2}$

57.  $\frac{2x^2y}{(x-3)^2} \cdot \frac{8xy}{x-3}$

59.  $\frac{2x+1}{x+5} - \frac{3}{x+5}$

61.  $\frac{3}{x^2+3x} - \frac{1}{x} - \frac{6}{x^2-9}$

63.  $\frac{5}{x^2+x-6} - \frac{2}{x-2} + \frac{4}{x^2-4}$

65.  $\frac{x}{y^2} - \frac{y}{x^2}$

67.  $\frac{2x + \frac{13x-3}{x-4}}{2x + \frac{x+3}{x-4}}$

69.  $\frac{1}{(x+h)^2} - \frac{1}{x^2}$

71.  $\frac{b}{a} - \frac{a}{b}$

73.  $\frac{1}{a} - \frac{1}{b}$

75.  $\frac{2x + \frac{13x-3}{x-4}}{2x + \frac{x+3}{x-4}}$

77.  $\frac{1}{(x+h)^2} - \frac{1}{x^2}$

79.  $\frac{b}{a} - \frac{a}{b}$

81.  $\frac{1}{a} - \frac{1}{b}$

44.  $\frac{y^2+3y}{y^3+3y^2-5y-15}$

46.  $\frac{x+3}{7} \cdot \frac{14}{2x+6}$

48.  $\frac{18x^2-3x}{3xy} \cdot \frac{12y^2}{6x-1}$

50.  $\frac{y^3+2y^2+4y}{y^3+2y^2} \cdot \frac{y^2-4}{y^3-8}$

52.  $\frac{y^2+8y+16}{3y^2-y-2} \cdot \frac{3y^2+2y}{y+4}$

54.  $\frac{4x}{y} \div \frac{8y}{x}$

56.  $\frac{7x-7y}{4y} \div \frac{14x-14y}{3y}$

58.  $\frac{x^2-y^2}{2xy} \cdot \frac{y^2-x^2}{4x^2y}$

60.  $\frac{3}{x-2} + \frac{x+1}{x-2}$

In Exercises 63–70, simplify the compound fraction.

63.  $\frac{\frac{x}{y^2} - \frac{y}{x^2}}{\frac{1}{y^2} - \frac{1}{x^2}}$

65.  $\frac{2x + \frac{13x-3}{x-4}}{2x + \frac{x+3}{x-4}}$

67.  $\frac{1}{(x+h)^2} - \frac{1}{x^2}$

69.  $\frac{b}{a} - \frac{a}{b}$

71.  $\frac{1}{a} - \frac{1}{b}$

64.  $\frac{\frac{1}{x} + \frac{1}{y}}{\frac{1}{x^2} - \frac{1}{y^2}}$

66.  $\frac{2 - \frac{13}{x+5}}{2 + \frac{3}{x-3}}$

68.  $\frac{\frac{x+h}{x+h+2} - \frac{x}{x+2}}{h}$

70.  $\frac{\frac{1}{a} + \frac{1}{b}}{\frac{b}{a} - \frac{a}{b}}$

In Exercises 71–74, write with positive exponents and simplify.

71.  $\left(\frac{1}{x} + \frac{1}{y}\right)(x+y)^{-1}$

73.  $x^{-1} + y^{-1}$

72.  $\frac{(x+y)^{-1}}{(x-y)^{-1}}$

74.  $(x^{-1} + y^{-1})^{-1}$

Find the domain of the following in interval notation:

$$\frac{1}{\sqrt{x+2}}$$

$$\sqrt{3x-1}$$

$$\frac{4}{x^2-25x}$$

$$\frac{4}{x^3-25x}$$

$$\frac{8x}{x+1}$$

$$\frac{\sqrt{x-1}}{x-5}$$

Evaluate each of the following. Find the letter which corresponds to each answer and write that letter in the appropriate space provided.

### Why do so many students study Trigonometry?

1.  $\csc \frac{\pi}{6} =$
2.  $\sin \frac{11\pi}{6} =$
3.  $\tan \frac{4\pi}{3} =$
4.  $\cos \frac{11\pi}{6} =$
5.  $\sec \frac{5\pi}{3} =$
6.  $\sin \frac{3\pi}{4} =$
7.  $\csc \frac{7\pi}{6} =$
8.  $\cos \frac{4\pi}{3} =$
9.  $\sin \frac{\pi}{2} =$
10.  $\sec \frac{7\pi}{4} =$

Because                                                                             

- |                          |                          |                           |                           |
|--------------------------|--------------------------|---------------------------|---------------------------|
| $I = 2$                  | $T = -\frac{1}{2}$       | $O = 1$                   | $C = \frac{1}{\sqrt{3}}$  |
| $R = \frac{\sqrt{3}}{2}$ | $G = \frac{1}{\sqrt{2}}$ | $F = \frac{1}{2}$         | $S = \sqrt{3}$            |
| $H = -2$                 | $N = \sqrt{2}$           | $A = \frac{-1}{\sqrt{2}}$ | $E = \frac{-\sqrt{3}}{2}$ |

### Did you hear about the girl who backed into a fan?

1.  $\sin 240^\circ =$
2.  $\cos 315^\circ =$
3.  $\tan 135^\circ =$
4.  $\cot 225^\circ =$
5.  $\tan 315^\circ =$
6.  $\sec 210^\circ =$
7.  $\sin 150^\circ =$
8.  $\csc 120^\circ =$

                                                       

- |                          |                           |                           |
|--------------------------|---------------------------|---------------------------|
| $E = \frac{1}{2}$        | $D = \frac{-\sqrt{3}}{2}$ | $T = \frac{-2}{\sqrt{3}}$ |
| $B = -\frac{1}{2}$       | $C = \sqrt{3}$            | $S = -1$                  |
| $I = \frac{1}{\sqrt{2}}$ | $A = 1$                   | $R = \frac{2}{\sqrt{3}}$  |

**Find  $\theta$  ( $0 \leq \theta < 2\pi$ ):**

1.  $\cos \theta = \frac{1}{2}$

2.  $\sin \theta = -1$

3.  $\tan \theta = \sqrt{3}$

4.  $\cos 30^\circ =$

5.  $\cos 45^\circ =$

6.  $\csc 315^\circ =$

7.  $\sin 0^\circ =$

8.  $\cos 90^\circ =$

9.  $\csc 210^\circ =$

10.  $\cot 0^\circ =$

11.  $\tan 120^\circ =$

12.  $\sec 330^\circ =$

13.  $\csc 270^\circ =$

14.  $\cot 135^\circ =$

15.  $\tan \frac{\pi}{6} =$

16.  $\cot \frac{5\pi}{4} =$

17.  $\sin \frac{5\pi}{4} =$

18.  $\sin \frac{5\pi}{6} =$

19.  $\cos \frac{\pi}{4} =$

20.  $\tan \frac{5\pi}{3} =$

21.  $\sec \frac{7\pi}{4} =$

22.  $\sec \pi =$

23.  $\sec -\frac{\pi}{3} =$

25.  $\cot -\frac{3\pi}{2} =$

26.  $\cos \frac{7\pi}{4} =$

27.  $\csc \frac{5\pi}{6} =$

28.  $\tan \frac{2\pi}{3} =$

**Find  $\theta$  ( $0 \leq \theta < 2\pi$ ):**

29.  $\csc \theta = 3.256$

30.  $\cot \theta = .21686$

31.  $\cos \theta = -.782$

32.  $\tan \theta = -1.212$

**EXERCISES**

Simplify each expression. Use only positive exponents.

1.  $(3a^2)(4a^6)$
2.  $(-4x^2)(-2x^{-2})$
3.  $(4x^3y^5)^2$
4.  $(2x^{-5}y^4)^3$
5.  $\frac{8a^5}{2a^2}$
6.  $\frac{6x^7y^5}{3x^{-1}}$
7.  $\frac{(4x^2)^0}{2xy^5}$
8.  $\left(\frac{3x^2}{2}\right)^{2x}$
9.  $(-6m^2n^2)(3mn)$
10.  $(3x^4y^5)^{-3}$
11.  $\frac{(2r^{-1}s^2t^0)^{-2}}{2rs}$
12.  $x^5(2x)^3$
13.  $\frac{x^4x^{-2}}{x^{-5}}$
14.  $\frac{(12x^2y^6)^2}{8x^4y^7}$
15.  $(4p^2q)(p^2q^3)$
16.  $\frac{4x^3}{2x}$
17.  $(p^2)^{-2}$
18.  $\frac{-15x^4}{3x}$
19.  $\frac{r^2s^3t^4}{r^2s^4t^{-4}}$
20.  $\frac{xy^2}{2} \cdot \frac{6x}{y^2}$
21.  $(s^2t)^3(st)$
22.  $(3x^{-3}y^{-2})^{-2}$
23.  $(h^4k^5)^0$
24.  $\frac{s^2t^3}{r} \cdot \frac{sr^3}{t}$



## APPENDIX A.2 EXERCISES

In Exercises 1–4, write the polynomial in standard form and state its degree.

1.  $2x - 1 + 3x^2$                       2.  $x^2 - 2x - 2x^3 + 1$   
 3.  $1 - x^7$                                 4.  $x^2 - x^4 + x - 3$

In Exercises 5–8, state whether the expression is a polynomial.

5.  $x^3 - 2x^2 + x^{-1}$                       6.  $\frac{2x-4}{x}$   
 7.  $(x^2 + x + 1)^2$                         8.  $1 - 3x + x^4$

In Exercises 9–18, simplify the expression. Write your answer in standard form.

9.  $(x^2 - 3x + 7) + (3x^2 + 5x - 3)$   
 10.  $(-3x^2 - 5) - (x^2 + 7x + 12)$   
 11.  $(4x^3 - x^2 + 3x) - (x^3 + 12x - 3)$   
 12.  $-(y^2 + 2y - 3) + (5y^2 + 3y + 4)$   
 13.  $2x(x^2 - x + 3)$                       14.  $y^2(2y^2 + 3y - 4)$   
 15.  $-3u(4u - 1)$                         16.  $-4v(2 - 3v^3)$   
 17.  $(2 - x - 3x^2)(5x)$                 18.  $(1 - x^2 + x^4)(2x)$

In Exercises 19–40, expand the product. Use vertical alignment in Exercises 33 and 34.

19.  $(x - 2)(x + 5)$                         20.  $(2x + 3)(4x + 1)$   
 21.  $(3x - 5)(x + 2)$                       22.  $(2x - 3)(2x + 3)$   
 23.  $(3x - y)(3x + y)$                     24.  $(3 - 5x)^2$   
 25.  $(3x + 4y)^2$                             26.  $(x - 1)^3$   
 27.  $(2u - v)^3$                               28.  $(u + 3v)^3$   
 29.  $(2x^3 - 3y)(2x^3 + 3y)$                 30.  $(5x^3 - 1)^2$   
 31.  $(x^2 - 2x + 3)(x + 4)$                 32.  $(x^2 + 3x - 2)(x - 3)$   
 33.  $(x^2 + x - 3)(x^2 + x + 1)$   
 34.  $(2x^2 - 3x + 1)(x^2 - x + 2)$   
 35.  $(x - \sqrt{2})(x + \sqrt{2})$                     36.  $(x^{1/2} - y^{1/2})(x^{1/2} + y^{1/2})$   
 37.  $(\sqrt{u} + \sqrt{v})(\sqrt{u} - \sqrt{v})$                 38.  $(x^2 - \sqrt{3})(x^2 + \sqrt{3})$   
 39.  $(x - 2)(x^2 + 2x + 4)$                 40.  $(x + 1)(x^2 - x + 1)$

In Exercises 41–44, factor out the common factor.

41.  $5x - 15$                                 42.  $5x^3 - 20x$   
 43.  $yz^3 - 3yz^2 + 2yz$                     44.  $2x(x + 3) - 5(x + 3)$

In Exercises 45–48, factor the difference of two squares.

45.  $z^2 - 49$                                 46.  $9y^2 - 16$   
 47.  $64 - 25y^2$                               48.  $16 - (x + 2)^2$

In Exercises 49–52, factor the perfect square trinomial.

49.  $y^2 + 8y + 16$                         50.  $36y^2 + 12y + 1$   
 51.  $4z^2 - 4z + 1$                         52.  $9z^2 - 24z + 16$

In Exercises 53–58, factor the sum or difference of two cubes.

53.  $y^3 - 8$                                 54.  $z^3 + 64$   
 55.  $27y^3 - 8$                               56.  $64z^3 + 27$   
 57.  $1 - x^3$                                 58.  $27 - y^3$

In Exercises 59–68, factor the trinomial.

59.  $x^2 + 9x + 14$                         60.  $y^2 - 11y + 30$   
 61.  $z^2 - 5z - 24$                         62.  $6t^2 + 5t + 1$   
 63.  $14u^2 - 33u - 5$                       64.  $10v^2 + 23v - 12$   
 65.  $12x^2 + 11x - 15$                     66.  $2x^2 - 3xy + y^2$   
 67.  $6x^2 + 11xy - 10y^2$                 68.  $15x^2 + 29xy - 14y^2$

In Exercises 69–74, factor by grouping.

69.  $x^3 - 4x^2 + 5x - 20$                 70.  $2x^3 - 3x^2 + 2x - 3$   
 71.  $x^6 - 3x^4 + x^2 - 3$                     72.  $x^6 + 2x^4 + x^2 + 2$   
 73.  $2ac + 6ad - bc - 3bd$   
 74.  $3uw + 12uz - 2vw - 8vz$

In Exercises 75–90, factor completely.

75.  $x^3 + x$                                 76.  $4y^5 - 20y^2 + 25y$   
 77.  $18y^3 + 48y^2 + 32y$                 78.  $2x^3 - 16x^2 + 14x$   
 79.  $16y - y^3$                               80.  $3x^4 + 24x$   
 81.  $5y + 3y^2 - 2y^3$                     82.  $z - 8z^4$   
 83.  $2(5x + 1)^2 - 18$                     84.  $5(2x - 3)^2 - 20$   
 85.  $12x^2 + 22x - 20$                     86.  $3x^2 + 13xy - 10y^2$   
 87.  $2ac - 2bd + 4ad - bc$               88.  $6ac - 2bd + 4bc - 3ad$   
 89.  $x^3 - 3x^2 - 4x + 12$                 90.  $x^4 - 4x^3 - x^2 + 4x$

**91. Writing to Learn** Show that the grouping

$$(2ac + bc) - (2ad + bd)$$

leads to the same factorization as in Example 11b. Explain why the third possibility,

$$(2ac - bd) + (-2ad + bc)$$

does not lead to a factorization.

# EXERCISES

## Practice and Problem Solving

Example 1 **Simplify each expression.**

1.  $36^{\frac{1}{2}}$

2.  $27^{\frac{1}{3}}$

3.  $49^{\frac{1}{2}}$

4.  $10^2 \cdot 10^2$

5.  $(-3)^{\frac{1}{3}} \cdot (-3)^{\frac{1}{3}} \cdot (-3)^{\frac{1}{3}}$

6.  $3^{\frac{1}{2}} \cdot 12^{\frac{1}{2}}$

7.  $2^{\frac{1}{2}} \cdot 32^{\frac{1}{2}}$

8.  $3^{\frac{1}{3}} \cdot 9^{\frac{1}{3}}$

9.  $3^{\frac{1}{4}} \cdot 27^{\frac{1}{4}}$

Example 2 **Write each expression in radical form.**

10.  $x^{\frac{1}{6}}$

11.  $x^{\frac{1}{5}}$

12.  $x^{\frac{2}{5}}$

13.  $y^{\frac{2}{5}}$

14.  $y^{-\frac{9}{8}}$

15.  $t^{-\frac{3}{4}}$

16.  $x^{1.5}$

17.  $y^{1.2}$

Example 3 **Write each expression in exponential form.**

18.  $x^{\frac{1}{6}}$

19.  $x^{\frac{1}{5}}$

20.  $x^{\frac{2}{5}}$

21.  $y^{\frac{2}{5}}$

22.  $y^{-\frac{9}{8}}$

23.  $t^{-\frac{3}{4}}$

24.  $x^{1.5}$

25.  $y^{1.2}$

Example 4

**The optimal height  $h$  of the-letters of a message printed on pavement is given by the formula  $h = \frac{0.00252d^{2.27}}{e}$ . Here  $d$  is the distance of the driver from the letters and  $e$  is the height of the driver's eye above the pavement. All of the distances are in meters. Find  $h$  for the given values of  $d$  and  $e$ .**

26.  $d = 100$  m,  $e = 1.2$  m

27.  $d = 50$  m,  $e = 1.2$  m

28.  $d = 50$  m,  $e = 2.3$  m

29.  $d = 25$  m,  $e = 2.3$  m

**Simplify each number.**

30.  $8^{\frac{2}{3}}$

31.  $64^{\frac{2}{3}}$

32.  $(-8)^{\frac{2}{3}}$

33.  $(-32)^{\frac{2}{3}}$

Example 5

34.  $(32)^{-\frac{4}{5}}$

35.  $4^{1.5}$

36.  $16^{1.5}$

37.  $10,000^{0.75}$

**Write each expression in simplest form. Assume that all variables are positive.**

38.  $(x^{\frac{2}{3}})^{-3}$

39.  $(x^{-\frac{4}{7}})^7$

40.  $(3x^{\frac{2}{3}})^{-1}$

41.  $5(x^{\frac{2}{3}})^{-1}$

42.  $(-27x^{-9})^{\frac{1}{3}}$

43.  $(-32y^{15})^{\frac{1}{5}}$

44.  $\left(\frac{x^3}{x^{-1}}\right)^{-\frac{1}{4}}$

45.  $\left(\frac{x^2}{x^{-11}}\right)^{\frac{1}{3}}$

46.  $(x^{\frac{1}{2}}y^{-\frac{2}{3}})^{-6}$

47.  $(x^{\frac{2}{3}}y^{-\frac{1}{6}})^{-12}$

48.  $\left(\frac{\frac{1}{x^4}}{v^{-\frac{3}{4}}}\right)^{12}$

49.  $\left(\frac{x^{-\frac{2}{3}}}{y^{-\frac{1}{3}}}\right)^{15}$

**Simplify each expression. Assume that all variables are positive.**

65.  $x^{\frac{2}{7}} \cdot x^{\frac{3}{14}}$

66.  $y^{\frac{1}{2}} \cdot y^{\frac{3}{10}}$

67.  $x^{\frac{3}{5}} \div x^{\frac{1}{10}}$

68.  $y^{\frac{5}{7}} \div y^{\frac{3}{14}}$

69.  $\frac{x^{\frac{3}{4}}y^{-\frac{1}{4}}}{x^{\frac{1}{2}}y^{\frac{1}{2}}}$

70.  $\frac{x^{\frac{1}{2}}y^{-\frac{1}{3}}}{x^{\frac{1}{4}}y^{\frac{1}{2}}}$

71.  $\left(\frac{16x^{14}}{18y^{18}}\right)^{\frac{1}{2}}$

72.  $\left(\frac{81y^{16}}{16x^{12}}\right)^{\frac{1}{2}}$

73.  $(x^{\frac{1}{2}} \cdot x^{\frac{5}{12}})^{\frac{1}{3}} \div x^{\frac{2}{3}}$

74.  $(x^{\frac{3}{4}} \div x^{\frac{7}{8}}) \cdot x^{-\frac{1}{6}}$

75.  $\left[(x^{-\frac{1}{2}})^2\right]^{\frac{1}{3}}$

76.  $\left[(\sqrt{x^3y^3})^{\frac{1}{3}}\right]^{-1}$

**More Domain Problems**

Find the Domain of the following:

1.  $g(x) = \frac{\sqrt{2x-3}}{x^2-4}$

2.  $h(x) = \sqrt{x^2-1}$

3.  $f(x) = \frac{\sqrt{x+1}}{x^3-16x}$

4.  $g(x) = \frac{x^2-25}{\sqrt{x+7}}$

Find the Domain and Range of each

5.  $f(x) = \frac{2}{(x+3)} + 4$

6.  $h(x) = -\sqrt{x+3}$

7.  $f(x) = -|2x+4| + 3$

8.  $f(x) = 4 \cos(\theta) + 2$