

Homework Answers:

P. 218

34) $\left\{-\frac{1}{2}, 3\right\}$

$$\frac{x(x-6)}{1} \left[\frac{1}{x-6} - \frac{1}{x} \right] : \frac{x(x-6)}{1} \left[\frac{6}{x(x-6)} \right]$$

$$x - (x-6) : 6 \quad 6 : 6$$

$$\mathbb{R} \quad x - x + 6 : 6$$

pp. 241-2

4) $\{-1\}$

12) $\{4\}$

13) $\{x | x \neq 0, 6\}$

14) $\{\}$

22) $\{-23/8\}$

$$\frac{(x-2)(x+2)}{1} \left[\frac{8}{(x-2)(x+2)} : \frac{x}{x-2} - \frac{2}{x+2} \right]$$

$$8 = x(x+2) - 2(x-2)$$

Oct 6-7:19 PM

For each of the equations below, find the following:

a. axis

must be a
line $x = \underline{\quad}$

d. sketch

b. vertex

must be a pt

e. range

c. state maximum or minimum

f. intervals where increasing & decreasing

3. $g(x) = x^2 + 2x + 6$

$$(a) x = -\frac{b}{2a} = \frac{-2}{2(1)} = -1$$

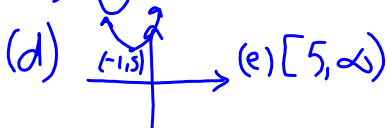
$$x = -1$$

$$(b) g(-1) = (-1)^2 + 2(-1) + 6$$

$$= 1 - 2 + 6 = 5$$

$$(-1, 5)$$

(c) minimum



(f) inc: $(-1, \infty)$
dec: $(-\infty, -1)$

4. $f(x) = -x^2 - 8x + 5$

$$(a) x = -\frac{b}{2a} = \frac{8}{2(-1)} = -4$$

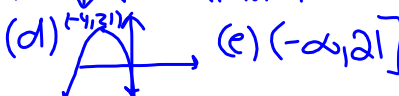
$$x = -4$$

$$(b) f(-4) = -(-4)^2 - 8(-4) + 5$$

$$= -16 + 32 + 5$$

$$= 16 + 5 = 21$$

(c) maximum

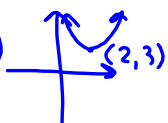


(f) inc $(-\infty, -4)$
dec $(-4, \infty)$

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5. $g(x) = \frac{(x-h)^2 + k}{x-2} + 3$

(a) $x=h$ (b) $(2,3)$
 $x=2$

(c) $\cup$ minimum (d) 

(e) $[3, \infty)$ (f) inc $(2, \infty)$
 dec $(-\infty, 2)$

6. $f(x) = \frac{(x-h)^2 + k}{x+3} - 1$

(a) $x=h$ (b) $(-3,-1)$
 $x=-3$

(c) $\cap$ maximum (d) 

(e) $(-\infty, -1]$ (f) inc $(-\infty, -3)$
 dec $(-3, \infty)$

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Oct 11-7:40 AM

Radical Equations



Sep 30-1:23 PM

- ↳ **Always Isolate Radicals**
You can only square or cube **sides** of equations, **not terms**...
- ↳ **Always Check Answers**
You may have **extraneous roots** → not all answers work...
- ↳ **Answers must be in the REAL Numbers**
You **can't** have a negative under a **square root**...
You **can** have a negative under a **cube root**...

Sep 30-2:39 PM

Solve the following:

1. $(\sqrt{4x+9})^2 = (5)^2$

$4x+9=25$

$$\begin{array}{r} -9 \\ 4x+9 = 25 \\ \hline 4x = 16 \\ \hline x = 4 \end{array}$$

$\{4\}$

Check

$\sqrt{4(4)+9} = 5$

$\sqrt{25} = 5$

$5 \neq 5$

$\neq x^2 = 25$

2. $(\sqrt[3]{x^2-1})^3 = (2)^3 \quad \{\pm 3\}$

$x^2-1=8$

$\sqrt{x^2-1} = \sqrt{9}$

$x = \pm 3$

Check

$$\begin{array}{ll} x=3 & x=-3 \\ \sqrt[3]{9-1} = 2 & \sqrt[3]{(-3)^2-1} = 2 \\ \sqrt[3]{8} = 2 & \sqrt[3]{8} = 2 \\ 2 = 2 & 2 \neq 2 \end{array}$$

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3. $(\sqrt{x+7})^2 = (x-5)^2 \neq x^2+25$

$\{9\}$

$x+7 : (x-5)(x-5)$

$x+7 : x^2-5x-5x+25$

$x+7 : x^2-10x+25$

$\begin{array}{r} -x-7 \\ x^2-10x+25 \\ \hline -x-7 \end{array}$

$x^2-11x+18 : 0$

$(x-2)(x-9) : 0$

$x-2 : 0 \quad x-9 : 0$

$x : 2 \quad x : 9$

Check

$x = 2 \text{ reject}$

$\sqrt{9} = 2-5$

$3 \neq -3$

$x = 9$

$\sqrt{16} = 9-5$

$4 \neq 4$

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$$4. (\sqrt{5x+6})^2 = (3+\sqrt{x+3})^2$$

$$5x+6 : (3+\sqrt{x+3})(3+\sqrt{x+3})$$

$$5x+6 : 9+3\sqrt{x+3}+3\sqrt{x+3}+x+3$$

$$5x+6 : 12+6\sqrt{x+3}+x$$

$$\underline{-x-12} \quad \underline{-12}$$

$$(4x-6)^2 : ((6\sqrt{x+3})^2 \quad \text{Check} \quad x = -\frac{3}{4} \quad x = 6$$

$$(4x-6)(4x-6) : 36(x+3) \quad \sqrt{5(-\frac{3}{4})+6} \neq 3+\sqrt{-\frac{3}{4}+3}$$

$$16x^2-24x-24x+36 : 36x+108 \quad \{6\}$$

$$16x^2-48x+36 : 36x+108$$

$$\underline{-36x-108} \quad \underline{-36x-108}$$

$$\frac{16x^2}{4} - \frac{84x}{4} - \frac{72}{4} : 0$$

$$4x^2-21x-18 : 0$$

$$(4x+3)(x-6) : 0$$

$$\frac{4x+3:0}{x:-\frac{3}{4}} \quad \frac{x-6:0}{x:6}$$

$$x = -\frac{3}{4} \quad x = 6$$

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$$5. \sqrt{2x-5} - \sqrt{x-3} = 1$$

$$\{3, 7\}$$

$$(\sqrt{2x-5})^2 : (1+\sqrt{x-3})^2$$

$$2x-5 : (1+\sqrt{x-3})(1+\sqrt{x-3})$$

$$2x-5 : 1+\sqrt{x-3}+\sqrt{x-3}+x-3$$

$$2x-5 : -2+2\sqrt{x-3}+x$$

$$\underline{-x+2} \quad \underline{+2}$$

$$(x-3)^2 : (2\sqrt{x-3})^2$$

$$(x-3)(x-3) : 4(x-3)$$

$$x^2-6x+9 : 4x-12$$

$$\underline{-4x+12} \quad \underline{-4x+12}$$

$$x^2-10x+21 : 0$$

$$(x-7)(x-3) : 0$$

$$\frac{x-7:0}{x:7} \quad \frac{x-3:0}{x:3}$$

$$x = 7 \quad x = 3$$

$$x = 7$$

$$\sqrt{14-5} - \sqrt{4} = 1$$

$$\sqrt{9} - \sqrt{4} = 1$$

$$3-2 = 1$$

$$1 = 1$$

$$x = 3$$

$$\sqrt{6-5} - \sqrt{3-3} = 1$$

$$\sqrt{1-0} = 1$$

$$1 = 1$$

Oct 15-12:12 PM

HW: PP. 241 - 242
26, 31, 34, 50, 54, 64, 67



TEST Wednesday !!!





Oct 15-12:12 PM

Oct 11-7:41 AM