

1.6 pg 136 33-55 odd

33.

$$y = x^4 - 10x^2 + 9$$
$$= (x^2 - 9)(x^2 - 1)$$

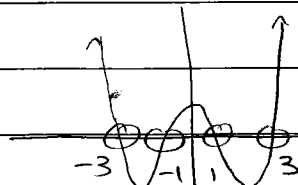
$$x^2 - 9 = 0 \quad x^2 - 1 = 0$$

$$\sqrt{x^2} = 3$$

$$x = \pm 3$$

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

$$x = \pm 1$$



$$x = \pm 3$$

$$x = \pm 1$$

34.

$$y = x^4 - 29x^2 + 100$$
$$= (x^2 - 25)(x^2 - 4)$$

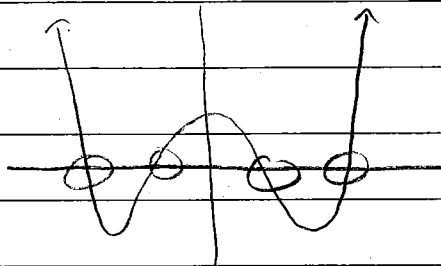
$$x^2 - 25 = 0 \quad x^2 - 4 = 0$$

$$\sqrt{x^2} = 5$$

$$x = \pm 5$$

$$\sqrt{x^2} = 2$$

$$x = \pm 2$$



$$x = \pm 5$$

$$x = \pm 2$$

35.

$$\sqrt{3x} - 12 = 0$$

$$\sqrt{3x} = 12$$

$$3x = 144$$

$$x = 48$$

36

$$7\sqrt{x} - 4 = 0$$

$$(7\sqrt{x})^2 = 4^2$$

$$49x = 16$$

$$49 \quad 49$$

$$x = \frac{16}{49}$$

37.

$$\sqrt{x-10} - 4 = 0$$

$$\sqrt{x-10} = 4$$

$$x-10 = 16$$

$$x = 26$$

38

$$\sqrt{5-x} - 3 = 0$$

$$\sqrt{5-x} = 3$$

$$5-x = 9$$

$$-x = 4$$

$$x = -4$$

$$(39) \sqrt[3]{2x+5} + 3 = 0$$

$$\sqrt[3]{2x+5} = -3$$

$$2x+5 = -27$$

$$2x = -32$$

$$\boxed{x = -16}$$

$$(41) -\sqrt{26-11x} + 4 = x$$

$$(-\sqrt{26-11x}) = (x-4)^2$$

$$26-11x = (x-4)(x-4)$$

$$26-11x = x^2 - 8x + 16$$

$$\begin{array}{r} -26 + 11x \\ \hline \end{array} \quad \begin{array}{r} +11x - 26 \\ \hline \end{array}$$

$$0 = x^2 + 3x - 10$$

$$0 = (x+5)(x-2)$$

$$x+5=0 \quad x-2=0$$

$$\boxed{x = -5} \quad \boxed{x = 2}$$

$$(43) \sqrt{x+1} = \sqrt{3x+1}$$

$$x+1 = 3x+1$$

$$\begin{array}{r} -x - 1 \\ \hline \end{array} \quad \begin{array}{r} -x - 1 \\ \hline \end{array}$$

$$0 = 2x$$

$$\boxed{0 = x}$$

$$(45) \sqrt{x} - \sqrt{x-5} = 1$$

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

$$x = (1 + \sqrt{x-5})(1 + \sqrt{x-5})$$

$$x = 1 + \sqrt{x-5} + \sqrt{x-5} + x-5$$

$$x = 1 + 2\sqrt{x-5} + x-5$$

$$x = x - 4 + 2\sqrt{x-5}$$

$$(47) \sqrt{x+5} + \sqrt{x-5} = 10$$

$$\sqrt{x+5} = (10 - \sqrt{x-5})^2$$

$$x+5 = (10 - \sqrt{x-5})(10 - \sqrt{x-5})$$

$$x+5 = 100 - 10\sqrt{x-5} - 10\sqrt{x-5} + x-5$$

$$x+5 = 100 - 20\sqrt{x-5} + x-5$$

-x

-x

$$5 = 95 - 20\sqrt{x-5}$$

$$-90 = -20\sqrt{x-5}$$

$$\begin{array}{r} -20 \\ \hline \end{array} \quad \begin{array}{r} -20 \\ \hline \end{array}$$

$$\frac{9}{2} = \sqrt{x-5}$$

$$\frac{81}{4} = x-5$$

$$\begin{array}{r} +5 \\ \hline \end{array} \quad \begin{array}{r} +5 \\ \hline \end{array}$$

$$\frac{101}{4} = x$$

$$\boxed{25.25 = x}$$

$$(49) \sqrt{x+2} - \sqrt{2x-3} = -1$$

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

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

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

$$x+2 = 2x-2 - 2\sqrt{2x-3}$$

$$\begin{array}{r} -2x+2 \\ \hline \end{array} \quad \begin{array}{r} -2x+2 \\ \hline \end{array}$$

$$-x+4 = -2\sqrt{2x-3}$$

$$\begin{array}{r} -2 \\ \hline \end{array} \quad \begin{array}{r} -2 \\ \hline \end{array}$$

$$\left(\frac{1}{2}x-2\right)^2 = \sqrt{2x-3}^2$$

$$\left(\frac{1}{2}x-2\right)\left(\frac{1}{2}x-2\right) = 2x-3 \rightarrow$$

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(49) cont'd

$$\left(\frac{1}{2}x-2\right)\left(\frac{1}{2}x-2\right)=2x-3$$

$$\frac{1}{4}x^2 - x - x + 4 = 2x - 3$$

$$\frac{1}{4}x^2 - 2x + 4 = 2x - 3$$

$$\frac{1}{4}x^2 - 2x + 4 - 2x + 3 = 0$$

$$\frac{1}{4}x^2 - 4x + 7 = 0$$

$$x = 4 \pm \sqrt{16 - 4\left(\frac{1}{4}\right)(7)}$$

$$2\left(\frac{1}{4}\right)$$

$$= 4 \pm \sqrt{16-7}$$

$$\frac{1}{2}$$

$$= \frac{4 \pm \sqrt{11}}{\frac{1}{2}} = \boxed{8 \pm 2\sqrt{11}}$$

(51)

$$(x-5)^{\frac{3}{2}} = 8$$

$$(x-5)^{\frac{3}{2} \cdot \frac{2}{3}} = 8^{\frac{2}{3}}$$

$$x-5 = \sqrt[3]{8^2}$$

$$x-5 = 2^2$$

$$x-5 = 4$$

$$\boxed{x=9}$$

(53)

$$(x+3)^{\frac{2}{3}} = 8$$

$$(x+3)^{\frac{2}{3} \cdot \frac{3}{2}} = 8^{\frac{3}{2}}$$

$$(x+3) = \sqrt{8^3}$$

$$(x+3) = \pm \sqrt{512}$$

$$x+3 = \pm 16\sqrt{2}$$

$$\boxed{x = -3 \pm 16\sqrt{2}}$$

(55)

$$(x^2-5)^{\frac{3}{2}} = 27$$

$$(x^2-5)^{\frac{3}{2} \cdot \frac{2}{3}} = 27^{\frac{2}{3}}$$

$$(x^2-5) = \sqrt[3]{27^2}$$

$$(x^2-5) = 3^2$$

$$x^2-5 = 9$$

$$x^2 = 14$$

$$\boxed{x = \pm \sqrt{14}}$$

