7.1 1, 3, 5, 21, 23

1. $\sqrt{225} = \pm 15$

3. $\sqrt{\frac{-1}{121}}$ = none

5. $\sqrt[3]{-64} = -4$

21. $\sqrt{16x^2} = 4|x|$

23 $\sqrt{x^8 y^{18}} = x^4|y^9|$

7.2 15, 25, 27

15. $\sqrt[3]{-250x^6y^5} = \sqrt[3]{-125 \cdot 2 \cdot x^6 \cdot y^5}$
$= -5x^2\sqrt[3]{2y^5}$
$= -5x^2 y \sqrt[3]{2y^2}$

25. $\frac{\sqrt{56x^5y^5}}{\sqrt{7xy}} = \sqrt{8x^4y^4} = 2x^2y^2\sqrt{2}$

27. $\frac{\sqrt{x}}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \boxed{\frac{\sqrt{2x}}{2}}$

7.3 1, 5, 13, 19

1. $5\sqrt{6} + \sqrt{6} = 6\sqrt{6}$

5. $14\sqrt{x} + 3\sqrt{y}$ = Can't combine

13. $(3+\sqrt{5})(1+\sqrt{5}) = 3 + 3\sqrt{5} + \sqrt{5} + 5$

19. $(5-\sqrt{11})(5+\sqrt{11}) = 8 + 4\sqrt{5}$

$= 25 - 11 = 14$

7.4 13, 15, 20, 21, 41, 43

13. $y^{\frac{2}{5}} = \sqrt[5]{y^2}$

15 $+^{\frac{-3}{4}} = \sqrt[4]{+^{-3}}$ $= \frac{1}{\sqrt[4]{+^3}}$

20. $\sqrt{(7x)^3} = (7x)^{\frac{3}{2}}$

21. $(\sqrt{7x})^3 = ((7x)^{\frac{1}{2}})^3 = (7x)^{\frac{3}{2}}$

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

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

43. $(-32y^{15})^{\frac{1}{5}} = -2y^3$

7.5 1, 5, 7, 15, 21

1. $3\sqrt{x}+3=15$

$3\sqrt{x}=12$

$\sqrt{x}=4$

$x=16$

21. $\sqrt{3x}=\sqrt{x+6}$

$3x=x+6$

$2x=6$

$x=3$

5. $\sqrt{2x+3}-7=0$

$\sqrt{2x+3}=7$

$2x+3=49$

$2x=46$

$x=23$

7. $\left((x+5)^{\frac{2}{3}}\right)^{3}=(4)^{3}$

$\sqrt{(x+5)^{2}}=\sqrt{64}$

$x+5=\pm 8$

$x=-5\pm 8$

$x=3 \quad x=-13$

15. $\sqrt{11x+3}-2x=0$

$\sqrt{11x+3}=2x$

$11x+3=4x^{2}$

$0=4x^{2}-11x-3$

$x=\frac{11\pm\sqrt{121-(4\cdot 4\cdot -3)}}{8}$

$\frac{11\pm\sqrt{121--48}}{8}=\frac{11\pm 13}{8}$

$=\frac{24}{8}$ or $-\frac{1}{4}$

$=3$

7.6 4, 5, 13, 15, 19, 64

4. $(3x+5)(x^2) = 3x^3+5x^2$

5. $\frac{3x+5}{x^2}$

13. $2x^2+x-3+x-1 = 2x^2+2x-4$

domain = all real #s

15. $(2x^2+x-3)-(x-1) = 2x^2-2$

domain = all reals

19. $9x \cdot 3x = 27x^2$

Domain all reals

$\frac{9x}{3x} = 3$ domain all reals except 0.

64. $f(g(x))$ $(x-5)+3 = x-2$

$g(f(x)) = (x+3)-5 = x-2$

7.7 5, 8

5. $y = 3x+1$

$x = 3y+1$

$x-1 = 3y$

$\frac{x-1}{3} = y$ Inverse is a function

8. $5-2x^2 = y$

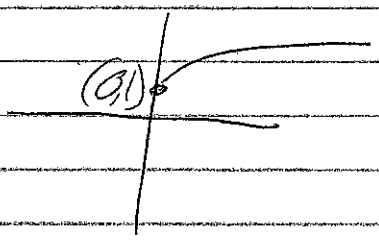
$5-2y^2 = x$

$5-x = 2y^2$

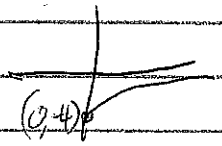
$\sqrt{\frac{5-x}{2}} = y$ Inverse is not a function

7.8 1, 3, 5, 7

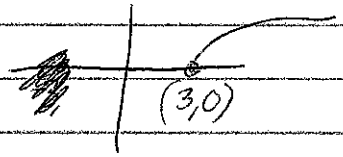
1. $y = \sqrt{x} + 1$



3. $\sqrt{x} - 4$



5. $\sqrt{x-3}$



7. $\sqrt{x+6}$