5A-1

1) $(X + 4)(X + 3)$

2) $(X + 1)(X + 2)$

3) $(X - 2)(X + 3)$

4) $(X - 6)(X - 5)$

5) $(X - Y)(X + Y)$

6) $(A - 9)(A + 9)$

7) $(2X + 3)(X - 1)$

8) $(3X + 2)(X + 5)$

9) $(5X - 1)(X + 3)$

10) $(4X + 1)(X + 5)$

11) $2(X^2 + 6X + 8) = 2(X + 2)(X + 4)$

12) $X(X^2 + 6X + 9) = X(X + 3)(X + 3)$

13) $(A^2 - 9)(A^2 + 9) = (A - 3)(A + 3)(A^2 + 9)$

14) $(X^2 - 16)(X^2 - 1) = (X - 4)(X + 4)(X - 1)(X+ 1)$

15) $3X^2 + 10X + 8 = 0$
$(3X + 4)(X + 2) = 0$
$3X + 4 = 0 \quad X + 2 = 0$
$3X = -4 \quad X = -2$
$X = -4/3$

$3(-4/3)^2 + 10(-4/3) + 12 = 4$
$3(16/9) - 40/3 + 12 = 4$ ✓

$3(-2)^2 + 10(-2) + 12 = 4$
$3(4) - 20 + 12 = 4$ ✓

16) $(X - 7)(X + 7) = 0$
$X - 7 = 0 \quad X + 7 = 0$
$X = 7 \quad X = -7$

$(7)^2 - 49 = 0$
$0 = 0$ ✓

$(-7)^2 - 49 = 0$
$0 = 0$ ✓

17) $2X^4 - 72X^2 = 0 \Rightarrow 2X^2(X^2 - 36) = 0$
$2X^2(X - 6)(X + 6) = 0$
$X - 6 = 0 \quad X + 6 = 0$
$X = 6 \quad X = -6$
$2X^2 = 0, \quad X = 0$

$2(6)^4 = 72(6)^2$
$2(1296) = 72(36)$ ✓

$2(-6)^4 = 72(-6)^2$
$2(1296) = 72(36)$ ✓

$2(0)^4 = 72(0)^2$
$0 = 0$ ✓

18) $X^4 - 26X^2 + 25 = 0$
$(X^2 - 1)(X^2 - 25) = 0$
$(X - 1)(X + 1)(X - 5)(X + 5) = 0$
$X = 1, \ X = -1, \ X = 5, \ X = -5$
$(1)^4 - 26(1)^2 + 27 = 2$
$1 - 26 + 27 = 2$ ✓
$(5)^4 - 26(5)^2 + 27 = 2$
$625 - 650 + 27 = 2$ ✓

5A-2

1) $(X + 4)(X - 3)$

2) $(X - 4)(X - 6)$

3) $(X - 9)(X + 1)$

4) $(X + 5)(X + 2)$

5) $(5A - 5B)(5A + 5B)$ May be reduced to $25(A-B)(A+B)$

6) $(2X - 8)(2X + 8)$ or $4(X^2 - 16) = 4(X - 4)(X + 4)$

7) $(3A + B)(A + B)$

8) $2(3X + 2)(X - 1)$

9) $(2X - 5)(X + 3)$

10) $(3X - 4)(X + 8)$

11) $2X(X^2 + 6X + 8) = 2X(X + 2)(X + 4)$

12) $3(A^2 - 7A + 6) = 3(A - 1)(A - 6)$

13) $(X^4 - 1)(X^4 + 1) = (X - 1)(X + 1)(X^2 + 1)(X^4 + 1)$

14) $(X^2 -9)(X^2 -100) = (X-3)(X+3)(X-10)(X+10)$

15) $2X(3X^2 + 5X + 2) = 0$
$2X(3X + 2)(X + 1) = 0$
$3X + 2 = 0 \quad X + 1 = 0$
$3X = -2 \quad X = -1$
$X = -2/3 \quad 2X = 0, \ X = 0$

$6(-2/3)^3 + 10(-2/3)^2 = -4(-2/3)$
$6(-8/27) + 10(4/9) = 8/3$
$-16/9 + 40/9 = 8/3$ ✓

$6(-1)^3 + 10(-1)^2 = -4(-1)$
$-6 + 10 = 4$ ✓

$6(0)^3 + 10(0)^2 = -4(0)$ ✓

16) $2(X^2 - 4X - 12) = 0$
$2(X - 6)(X + 2) = 0$
$X - 6 = 0 \quad X + 2 = 0$
$X = 6 \quad X = -2$

$2(6)^2 - 8(6) - 14 = 10$
$2(36) - 48 - 14 = 10$ ✓

$2(-2)^2 - 8(-2) - 14 = 10$
$2(4) + 16 - 14 = 10$ ✓

17) $X^3 - 100X = 0$
$X(X^2 - 100) = 0$
$X(X - 10)(X + 10) = 0$
$X - 10 = 0 \quad X + 10 = 0$
$X = 10 \quad X = -10$
$X = 0$

$(10)^3 - 50(10) = 50(10)$
$1000 - 500 = 500$ ✓

$(-10)^3 - 50(-10) = 50(-10)$
$-1000 + 500 = -500$ ✓

$(0)^3 - 50(0) = 50(0)$
$0 - 0 = 0$ ✓

18) $A^2 - 16A + 28 = 0$
$(A - 2)(A - 14) = 0$
$A - 2 = 0 \quad A - 14 = 0$
$A = 2 \quad A = 14$

$-8 = (2)^2 - 16(2) + 20$
$-8 = 4 - 32 + 20$ ✓

$-8 = (14)^2 - 16(14) + 20$
$-8 = 196 - 224 + 20$ ✓

5B-1

1) $\frac{2(X+2)}{(X-1)(X+2)}+\frac{6(X-1)}{(X+2)(X-1)}+\frac{3}{(X+2)(X-1)}=$

$\frac{2X+4+6X-6+3}{X^2+X-2}=\frac{8X+1}{X^2+X-2}$

2) $\frac{X+2}{X-2}-\frac{X+2}{X+2}=\frac{\cancel{(X+2)}(X+2)-\cancel{(X+2)}(X-2)}{\cancel{(X+2)}(X-2)}$

$=\frac{(X+2)-(X-2)}{X-2}=\frac{4}{X-2}$

3) $\frac{3(A+1)}{A(A+1)}+\frac{5(A)}{(A+1)(A)}=\frac{3A+3+5A}{A^2+A}=$

$\frac{8A+3}{A^2+A}$

4) $\frac{3X}{X+3}-\frac{2X}{X+2}=\frac{3X(X+2)-2X(X+3)}{(X+3)(X+2)}=$

$\frac{3X^2+6X-2X^2-6X}{X^2+5X+6}=\frac{X^2}{X^2+5X+6}$

5) $\frac{7(X-3)}{(X+2)(X-3)}+\frac{-(4)(X+2)}{(X-3)(X+2)}-\frac{2X+1}{(X+2)(X-3)}=$

$\frac{7X-21-4X-8-2X-1}{(X+2)(X-3)}=\frac{X-30}{X^2-X-6}$

6) $\frac{2X}{(X-2)(X+2)}+\frac{8X(X-2)}{(X+2)(X-2)}-\frac{4(X+2)}{(X-2)(X+2)}=$

$\frac{2X+8X^2-16X-4X-8}{(X-2)(X+2)}=\frac{8X^2-18X-8}{X^2-4}$

7) $\frac{\frac{2}{X}}{\frac{X+3}{4X}}=\frac{\frac{4X}{X+3}}{\cancel{X+3}}=\frac{8\cancel{X}}{\cancel{X}(X+3)}=\frac{8}{X+3}$

8) $\frac{\frac{4}{2}+\frac{1}{2}}{\frac{18}{3}-\frac{2}{3}}=\frac{\frac{5}{2}\times\frac{3}{16}}{\cancel{16}\times\frac{3}{\cancel{16}}}=\frac{15}{32}$

9) $\frac{\frac{2A}{A}-\frac{3}{A}}{\frac{4A-4}{A-1}+\frac{1}{A-1}}=\frac{\frac{2A-3}{A}}{\frac{4A-3}{A-1}}=\frac{\frac{A-1}{4A-3}}{\cancel{4A-3}}=$

$\frac{2A^2-5A+3}{4A^2-3A}$

10) $\frac{\frac{X^2+7X+12}{X^2+X-12}}{\frac{X^2+3X+2}{X^2-9}}=\frac{\frac{X^2-9}{X^2+3X+2}}{\cancel{X^2+3X+2}}=$

$\frac{(X+3)\cancel{(X+4)}}{\cancel{(X+4)}\cancel{(X-3)}}\frac{\cancel{(X-3)}(X+3)}{(X+2)(X+1)}=\frac{X^2+6X+9}{X^2+3X+2}$

11) $\frac{\frac{XY}{Y}-\frac{5}{Y}}{\frac{XY}{Y}+\frac{4}{Y}}=\frac{\frac{XY-5}{\cancel{Y}}}{\frac{XY+4}{\cancel{Y}}}=$

$\frac{XY-5}{XY+4}$

12) $\frac{\frac{X^2+X-6}{X^2-11X+30}}{\frac{X^2-7X+10}{X^2-10X+24}}=\frac{\frac{X^2-10X+24}{X^2-7X+10}}{\cancel{X^2-7X+10}}=$

$\frac{\cancel{(X-2)}(X+3)}{(X-5)\cancel{(X-6)}}\frac{\cancel{(X-6)}(X-4)}{\cancel{(X-2)}(X-5)}=\frac{X^2-X-12}{X^2-10X+25}$

5B-2

1) $\frac{10(X-4)}{(X+4)(X-4)}+\frac{3(X+4)}{(X-4)(X+4)}-\frac{2}{(X+4)(X-4)}=$

$\frac{10X-40+3X+12-2}{(X+4)(X-4)}=\frac{13X-30}{X^2-16}$

2) $\frac{A+B}{A-B}+\frac{2A}{B}=\frac{B(A+B)+2A(A-B)}{B(A-B)}=$

$\frac{AB+B^2+2A^2-2AB}{B(A-B)}=\frac{2A^2-AB+B^2}{AB-B^2}$

3) $\frac{15(X-1)}{X(X-1)}+\frac{20(X)}{(X-1)(X)}=\frac{15X-15+20X}{X^2-X}=$

$\frac{35X-15}{X^2-X}$

4) $\frac{4X}{X+1}-\frac{3Y}{X+1}=\frac{4X-3Y}{X+1}$

5) $\frac{4(B-5)}{(B-4)(B-5)}+\frac{(5)(B-4)}{(B-5)(B-4)}+\frac{B-5}{(B-5)(B-4)}=$

$\frac{4B-20+5B-20+B-5}{(B-5)(B-4)}=\frac{10B-45}{B^2-9B+20}$

6) $\frac{2X+3}{(2X)(2X+3)}+\frac{2X(2X)}{(2X+3)(2X)}+\frac{3(2X+3)}{(2X)(2X+3)}=$

$\frac{2X+3+4X^2+6X+9}{(2X)(2X+3)}=\frac{4X^2+8X+12}{4X^2+6X}=$

$\frac{\cancel{2}(2X^2+4X+6)}{\cancel{2}(2X^2+3X)}=\frac{2X^2+4X+6}{2X^2+3X}$

7) $\frac{\frac{A}{B}}{\frac{A+B}{AB}}=\frac{\frac{AB}{A+B}}{\frac{AB}{A+B}}=\frac{A^2\cancel{B}}{\cancel{B}(A+B)}=\frac{A^2}{A+B}$

8) $\frac{\frac{9}{3}-\frac{1}{3}}{\frac{25}{5}+\frac{3}{5}}=\frac{\frac{\cancel{8}^{2}}{3}\times\frac{5}{\cancel{28}_{7}}}{\frac{\cancel{28}}{\cancel{5}}\times\frac{\cancel{5}}{\cancel{28}}}=\frac{10}{21}$

9) $\frac{\frac{4X}{X}+\frac{1}{X}}{\frac{5X+5}{X+1}+\frac{X}{X+1}}=\frac{\frac{4X+1}{X}}{\frac{6X+5}{\cancel{X+1}}}=\frac{\frac{X+1}{6X+5}}{\cancel{6X+5}}=$

$\frac{4X^2+5X+1}{6X^2+5X}$

10) $\frac{\frac{X^2+4X-5}{X^2-3X-18}}{\frac{X^2+6X+5}{X^2-8X+12}}=\frac{\frac{X^2-8X+12}{X^2+6X+5}}{\cancel{X^2-8X+12}}=$

$\frac{(X-1)\cancel{(X+5)}}{(X+3)\cancel{(X-6)}}\frac{\cancel{(X-2)}\cancel{(X-6)}}{\cancel{(X+5)}(X+1)}=\frac{X^2-3X+2}{X^2+4X+3}$

11) $\frac{\frac{3Y}{3}-\frac{2}{3}}{\frac{4Y}{4}-\frac{1}{4}}=\frac{\frac{3Y-2}{3}}{\frac{4Y-1}{\cancel{4}}}=\frac{\frac{4}{4Y-1}}{\cancel{4Y-1}}=$

$\frac{12Y-8}{12Y-3}$

12) $\frac{\frac{X^4-16}{X^2-5X+4}}{\frac{X^2-4}{X^2+3X-28}}=\frac{\frac{X^2+3X-28}{X^2-4}}{\cancel{X^2-4}}=$

$\frac{\cancel{(X^2-4)}(X^2+4)\cancel{(X-4)}(X+7)}{\cancel{(X-4)}(X-1)\quad\cancel{(X^2-4)}}\frac{X^3+7X^2+4X+28}{X-1}$

5C

1) $(X + 4)(X + 5)$

2) $(X - 4)(X - 5)$

3) $(X + 6)(X - 6)$

4) $(2X + 1)(2X + 3)$

5) $(3X + 2)(2X - 1)$

6) $(X - 5)(X + 4)$

7) $10X^2(2X^2 + X - 3) = 10X^2(2X + 3)(X - 1)$

8) $(X^2 - 4)(X^2 + 4) = (X + 2)(X - 2)(X^2 + 4)$

9) $X^2 - X - 6 = 0$
$(X - 3)(X+ 2) = 0$
$X = 3 \quad X = -2$

$(3)^2 - (3) - 6 = 0$
$9 - 3 - 6 = 0 \quad 0 = 0$ ✓

$(-2)^2 - (-2) - 6 = 0$
$4 + 2 - 6 = 0 \quad 0 = 0$ ✓

10) $X^2 + 4X - 12 = 0$
$(X + 6)(X- 2) = 0$
$X = -6 \quad X = 2$

$(-6)^2 + 4(-6) - 12 = 0$
$36 - 24 - 12 = 0 \quad 0 = 0$ ✓

$(2)^2 + 4(2) - 12 = 0$
$4 + 8 - 12 = 0 \quad 0 = 0$ ✓

11) $\dfrac{(X - 1)\,5}{(X - 1)\,X} - \dfrac{4\ (X)}{(X - 1)(X)} =$

$\dfrac{5X - 5 - 4X}{(X - 1)(X)} = \dfrac{X - 5}{(X - 1)(X)}$

12) $\dfrac{(X - 3)\ 3}{(X - 3)(X + 2)} - \dfrac{6\ (X+ 2)}{(X - 3)(X + 2)} + \dfrac{4X}{X^2 - X - 6} =$

$\dfrac{3X - 9 - 6X - 12 + 4X}{X^2 - X - 6} = \dfrac{X - 21}{X^2 - X - 6}$

13) $\dfrac{1 + \frac{1}{3}}{1 - \frac{1}{3}} = \dfrac{\frac{4}{3} \cdot \frac{3}{2}}{\frac{2}{3} \cdot \frac{3}{2}} = 2$

14) $\dfrac{\frac{4}{3X} \cdot \frac{X}{X-5}}{\frac{X-5}{X} \cdot \frac{X}{X-5}} = \dfrac{4}{3(X - 5)} = \dfrac{4}{3X - 15}$

15) $3\sqrt{16} = 3 \cdot 4 = 12$

16) $6\sqrt{100}\sqrt{3} = 6 \cdot 10\sqrt{3} = 60\sqrt{3}$

17) $\dfrac{7\sqrt{5}}{\sqrt{5}\sqrt{5}} = \dfrac{7\sqrt{5}}{5}$

18) $\dfrac{2\sqrt{7}}{\sqrt{7}\sqrt{7}} + \dfrac{8\sqrt{11}}{\sqrt{11}\sqrt{11}} =$

$\dfrac{2\sqrt{7}\ (11)}{7\ (11)} + \dfrac{8\sqrt{11}\ (7)}{11\ (7)} =$

$\dfrac{22\sqrt{7} + 56\sqrt{11}}{77}$

19) $\dfrac{(5 \times 10^3)(6 \times 10^2)}{(2 \times 10^2)(3 \times 10^{-3})} =$

$\dfrac{3 \times 10^5}{2 \times 10^{-1}} = 1.5 \times 10^6$

20) $\dfrac{(X + 4)}{(X + 2)(X + 4)} = \dfrac{1}{X + 2}$

5D

1) $(X + 4)(X - 1)$

2) $(X - 5)(X+ 3)$

3) $(X + 5)(X +2)$

4) $(X + 10)(X + 7)$

5) $(X - 6)(X - 7)$

6) $(5X - 4)(X + 1)$

7) $(3X - 2)(X + 5)$

8) $(3X - 1)(3X + 1)$

9) $X^2 + 13X + 42 = 0$
$(X + 6)(X+ 7) = 0$
$X = -6 \quad X = -7$

$(-6)^2 + 13(-6) + 42 = 0$
$36 - 78 + 42 = 0 \quad 0 = 0$ ✓

$(-7)^2 + 13(-7) + 42 = 0$
$49 - 91 + 42 = 0 \quad 0 = 0$ ✓

10) $X^2 - 9 = 0$
$(X + 3)(X- 3) = 0$
$X = -3 \quad X = 3$

$(-3)^2 - 9 = 0$
$9 - 9 = 0 \quad 0 = 0$ ✓

$(3)^2 - 9 = 0$
$9 - 9 = 0 \quad 0 = 0$ ✓

11) $\dfrac{2X\ (X)}{Y\ (X)} - \dfrac{3\ (Y)}{X\ (Y)} + \dfrac{4\ (X)}{Y\ (X)} =$

$\dfrac{2X^2 - 3Y + 4X}{XY}$

12) $\dfrac{5\ \ (X)}{(X - 4)(X)} - \dfrac{9\ \ (X- 4)}{X\ (X - 4)} + \dfrac{8X}{X^2 - 4X} =$

$\dfrac{5X - (9X - 36) + 8X}{X^2 - 4X} = \dfrac{4X + 36}{X^2 - 4X}$

13) $\dfrac{2 + \frac{1}{2}}{5 - \frac{1}{8}} = \dfrac{\frac{5}{2} \cdot \frac{8}{39}}{\frac{39}{8} \cdot \frac{8}{39}} = \dfrac{20}{39}$

14) $\dfrac{\frac{(7)X}{(7)} - \frac{1}{7}}{\frac{1}{7} - \frac{X(7)}{(7)}} = \dfrac{\frac{7X - 1}{7} \cdot \frac{7}{1 - 7X}}{\frac{1 - 7X}{7} \cdot \frac{7}{1 - 7X}}$

$\dfrac{7X - 1}{1 - 7X} = \dfrac{7X - 1}{-(7X - 1)} = -1$

15) $\dfrac{\sqrt{6}}{3}$

16) $\dfrac{1\sqrt{6}}{5\sqrt{6}\sqrt{6}} = \dfrac{\sqrt{6}}{5(6)} = \dfrac{\sqrt{6}}{30}$

17) $7\sqrt{16}\sqrt{5} = 7(4)\sqrt{5} = 28\sqrt{5}$

18) $\dfrac{5\sqrt{10}}{\sqrt{10}\sqrt{10}} + \dfrac{4\sqrt{13}}{\sqrt{13}\sqrt{13}} = \dfrac{5\sqrt{10}}{10} + \dfrac{4\sqrt{13}}{13} =$

$\dfrac{\sqrt{10}\ (13)}{2\ (13)} + \dfrac{4\sqrt{13}\ (2)}{13\ (2)} =$

$\dfrac{13\sqrt{10} + 8\sqrt{13}}{26}$

19) $\dfrac{(14 \times 10^4)(27 \times 10^3)}{(42 \times 10^1)} =$

$\dfrac{9 \times 10^7}{10^1} = 9 \times 10^6$

20) $\dfrac{(X + 3)(X - 3)}{(X + 3)(X + 3)} = \dfrac{X - 3}{X + 3}$

5E

1) $(X + 6)(X - 4)$

2) $(X + 9)(X + 1)$

3) $(X - 5)(X - 2)$

4) $(8 - X)(8 + X)$

5) $(2X - 5)(X - 6)$

6) $(3X - 1)(X + 3)$

7) $(4X - 3)(X - 4)$

8) $(X - 3)(X + 2)$

9) $2X^2 - 18X + 36 = 0$ $\quad 2(6)^2 - 18(6) + 36 = 0$
$2(X^2 - 9X + 18) = 0$ $\quad 72 - 108 + 36 = 0 \quad 0 = 0$ ✓
$2(X - 6)(X - 3) = 0$
$X = 6 \qquad X = 3$ $\quad 2(3)^2 - 18(3) + 36 = 0$
$18 - 54 + 36 = 0 \quad 0 = 0$ ✓

10) $9X^2 - 24X + 16 = 0$ $\quad 9(4/3)^2 - 24(4/3) + 16 = 0$
$(3X - 4)(3X - 4) = 0$ $\quad 16 - 32 + 16 = 0 \quad 0 = 0$ ✓
$X = 4/3$

11) $\dfrac{(Y)\ (X - 3)}{(Y)\ \ 2X} - \dfrac{X - 2\ (X)}{2Y\ (X)} =$

$\dfrac{Y(X - 3) - X(X - 2)}{2XY} = \dfrac{XY - 3Y - X^2 + 2X}{2XY}$

12) $\dfrac{8X - 2}{X^2 + 5X + 6} - \dfrac{(X + 2)(X + 2)}{(X + 3)(X + 2)} =$

$\dfrac{8X - 2 - X^2 - 4X - 4}{X^2 + 5X + 6} = \dfrac{-X^2 + 4X - 6}{X^2 + 5X + 6}$

13) $\dfrac{4 + \frac{1}{4}}{6 - 1\frac{2}{3}} = \dfrac{\frac{17}{4} \cdot \frac{3}{13}}{\frac{\cancel{13}}{\cancel{3}} \cdot \frac{\cancel{3}}{\cancel{13}}} = \dfrac{51}{52}$

14) $\dfrac{\frac{5X}{2} + \frac{2}{2}}{\frac{(3X)2X}{(3X)} - \frac{4}{3X}} = \dfrac{\frac{5X + 2}{2} \cdot \frac{3X}{6X^2 - 4}}{\frac{6X^2 - 4}{3X} \cdot \frac{3X}{6X^2 - 4}}$

$= \dfrac{15X^2 + 6X}{12X^2 - 8}$

15) $\dfrac{\overset{4}{\cancel{20}}\ \overset{\sqrt{5}}{\cancel{\sqrt{15}}}}{\underset{}{\cancel{5}\ \cancel{\sqrt{3}}}} = 4\sqrt{5}$

16) $\dfrac{2\sqrt{10}}{10\sqrt{10}} = \dfrac{\cancel{2}\sqrt{10}}{\underset{5}{\cancel{10}}} = \dfrac{\sqrt{10}}{5}$

17) $9\sqrt{4}\ \sqrt{10} = 9(2)\sqrt{10} = 18\sqrt{10}$

18) $\dfrac{6\sqrt{7}}{\sqrt{7}\ \sqrt{7}} + \dfrac{9\sqrt{5}}{\sqrt{5}\ \sqrt{5}} =$

$\dfrac{6\sqrt{7}\ (5)}{7\ \ (5)} + \dfrac{9\sqrt{5}\ (7)}{5\ \ (7)} =$

$\dfrac{30\sqrt{7} + 63\sqrt{5}}{35}$

19) $\dfrac{(\overset{2}{\cancel{26}} \times 10^3)(\overset{2}{\cancel{4}} \times 10^{-5})}{(\underset{1}{\cancel{13}} \times 10^5)(\underset{1}{\cancel{2}} \times 10^8)} =$

$\dfrac{4 \times 10^{-2}}{1 \times 10^{13}} = 4 \times 10^{-15}$

20) $\dfrac{\cancel{(X + 2)}(X + 5)}{\cancel{(X + 2)}(X + 2)} = \dfrac{X + 5}{X + 2}$

6A

1) $4^3 = 64$

2) X^2

3) $2^2 = 4$

4) $16^{3/4} = 8$

5) $\dfrac{1}{9}$

6) $\left(\frac{2}{3}\right)^3 = \dfrac{8}{27}$

7) $2^3 = 8$

8) X^B

9) 6

10) $9^2 = 81$

11) $(X^{1/2})^{1/2} = X^{1/4}$

12) $[(125)^{1/3}]^2 = 5^2 = 25$

13) $(B^5)^{1/3} = B^{5/3}$

14) $(64^{1/3})^{1/2} = 4^{1/2} = 2$

15) $(36^{1/2})^3 = 6^3 = 216$

16) $(25^{1/2})^{1/2} = 5^{1/2}$ or $\sqrt{5}$

17) $[(64)^{1/6}]^{-3} = 64^{-1/2} = \dfrac{1}{8}$

18) $(81^{1/4})^{1/2} = 3^{1/2}$ or $\sqrt{3}$

19) $[(A^{16})^{1/2}]^{1/2} = A^4$

20) $(8^{1/3})^5 = 2^5 = 32$

6B

1) $2^4 = 16$

2) $2^{1/6}$

3) $X^{3/4}$

4) $(-3)^{2/3} = 9^{1/3}$

5) $\dfrac{1}{2}$

6) $\dfrac{2}{3}$

7) $3^4 = 81$

8) B^2

9) $5^{-1} = \dfrac{1}{5}$

10) $9^{1/2} = 3$

11) $[(X^4)^{1/2}]^{1/2} = X$

12) $[(64)^{1/3}]^4 = 4^4 = 256$

13) $(8^5)^{1/3} = 8^{5/3} = 2^5 = 32$

14) $(16^{1/4})^{1/2} = 2^{1/2}$ or $\sqrt{2}$

15) $(49^{1/2})^2 = 49$

16) $(A^8)^{1/4} = A^2$

17) $[(216)^{1/3}]^{-2} = 6^{-2} = \dfrac{1}{36}$

18) $(100^{1/2})^{1/2} = 10^{1/2}$ or $\sqrt{10}$

19) $(81^{1/2})^{1/2} = 9^{1/2} = 3$

20) $(32^{1/5})^4 = 2^4 = 16$