26E

1) $X^2(X^2 - 25)$
$X^2(X - 5)(X + 5)$

2) $(10)^4 - 25(10)^2 = (10^2)(10 - 5)(10 + 5)$
$7500 = (100)(5)(15)$
$7500 = 7500$

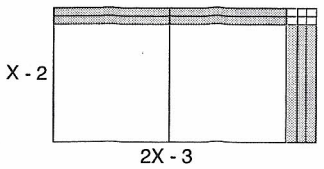
3) $5X(X^2 - 9)$
$5X(X - 3)(X + 3)$

4) $5(10)^3 - 45(10) = 5(10)(10 - 3)(10 + 3)$
$4550 = 5(10)(7)(13)$
$4550 = 4550$

5)
$$X + 4 \overline{)\, 2X^2 + X + 1}$$
$$2X - 7 \text{ R } 29$$
$$-(2X^2 + 8X)$$
$$-7X + 1$$
$$-(-7X - 28)$$
$$29$$

6)
$$\begin{array}{r} 2X - 7 \\ \times\ X + 4 \\ \hline 8X - 28 \\ 2X^2 - 7X \\ \hline 2X^2 + X - 28 \\ +\ 29 \\ \hline 2X^2 + X + 1 \end{array}$$

7) $2X^2 - 7X + 6$



8)
$$\begin{array}{r} 2X - 3 \\ \times\ X - 2 \\ \hline -4X + 6 \\ 2X^2 - 3X \\ \hline 2X^2 - 7X + 6 \end{array}$$

9)
$$\begin{array}{r} 25 \\ 25 \\ \hline 625 \end{array}$$

10)
$$\begin{array}{r} 32 \\ 38 \\ \hline 1216 \end{array}$$

11) $(12)(8) = 72A$
$96 = 72A$
$1\ 1/3 = A$

12) $5Y = (20)(12)$
$5Y = 240$
$Y = 48$

13) $-35Y + 55Y = 220$
$20Y = 220$
$Y = 11$

14) $WF \times 100 = 1$
$WF = 1/100$

15) $3 \times 10^{-2} + 7 \times 10^{-3} + 8 \times 10^{-4}$

16) $2{,}000{,}000 + 60{,}000 + 1{,}000 =$
$2{,}061{,}000$

17) $2(N) + 2(N + 2) - 5 = 7 + (N + 4)$
$2N + 2N + 4 - 5 = 7 + N + 4$
$3N = 12$
$N = 4 \quad 4, 6, 8$

18) $442 \div 52 = 8.5$ hours

19) $1 \times 212 = 212$ miles

20) $(3X)(X + 3) + 2(X + 3) =$
$(3X^2 + 9X) + (2X + 6)$

27A

1) $(X - 5)(X + 3) = 0$

2) $X - 5 = 0 \qquad X + 3 = 0$
$X = 5 \qquad X = -3$

3) $(5)^2 - 2(5) - 15 = 0 \qquad (-3)^2 - 2(-3) - 15 = 0$
$25 - 10 - 15 = 0 \qquad 9 + 6 - 15 = 0$
$0 = 0 \qquad 0 = 0$

4) $X(X - 2)(X - 1) = 0$

5) $X - 2 = 0 \qquad X - 1 = 0$
$X = 0 \qquad X = 2 \qquad X = 1$

6) $(0)^3 - 3(0)^2 + 2(0) = 0 \qquad (2)^3 - 3(2)^2 + 2(2) = 0$
$0 = 0 \qquad 8 - 12 + 4 = 0$
$0 = 0$

$(1)^3 - 3(1)^2 + 2(1) = 0$
$1 - 3 + 2 = 0$
$0 = 0$

7) $X(X - 1)(X + 1) = 0$

8) $X - 1 = 0 \qquad X + 1 = 0$
$X = 0 \qquad X = 1 \qquad X = -1$

9) $(0)^3 - (0) = 0 \qquad (1)^3 - (1) = 0$
$0 = 0 \qquad 1 - 1 = 0$
$0 = 0$

$(-1)^3 - (-1) = 0$
$-1 - 1 = 0$
$0 = 0$

10) $(2X - 1)(X - 3) = 0$

11) $2X - 1 = 0 \qquad X - 3 = 0$
$X = 1/2 \qquad X = 3$

12) $2(1/2)^2 - 7(1/2) + 3 = 0$
$2(1/4) - 7/2 + 3 = 0$
$1/2 - 7/2 + 3 = 0$
$0 = 0$

$2(3)^2 - 7(3) + 3 = 0$
$18 - 21 + 3 = 0$
$0 = 0$

27B

1) $X^2 + X - 56 = 0$
$(X + 8)(X - 7) = 0$

2) $X + 8 = 0 \qquad X - 7 = 0$
$X = -8 \qquad X = 7$

3) $(-8)^2 + (-8) = 56 \qquad (7)^2 + (7) = 56$
$64 - 8 = 56 \qquad 49 + 7 = 56$
$56 = 56 \qquad 56 = 56$

4) $(X - 5)(X - 6) = 0$

5) $X - 5 = 0 \qquad X - 6 = 0$
$X = 5 \qquad X = 6$

6) $(5)^2 - 11(5) + 30 = 0 \qquad (6)^2 - 11(6) + 30 = 0$
$25 - 55 + 30 = 0 \qquad 36 - 66 + 30 = 0$
$0 = 0 \qquad 0 = 0$

7) $(X - 7)(X - 8) = 0$

8) $X - 7 = 0 \qquad X - 8 = 0$
$X = 7 \qquad X = 8$

9) $(7)^2 - 15(7) + 56 = 0 \qquad (8)^2 - 15(8) + 56 = 0$
$49 - 105 + 56 = 0 \qquad 64 - 120 + 56 = 0$
$0 = 0 \qquad 0 = 0$

10) $(X - 5)(X - 8) = 0$

11) $X - 5 = 0 \qquad X - 8 = 0$
$X = 5 \qquad X = 8$

12) $(5)^2 - 13(5) + 40 = 0$
$25 - 65 + 40 = 0$
$0 = 0$

$(8)^2 - 13(8) + 40 = 0$
$64 - 104 + 40 = 0$
$0 = 0$

27C

1) $(2X + 3)(X + 2) = 0$

$2X + 3 = 0$ $\quad X + 2 = 0$

$X = -3/2$ $\quad X = -2$

2) $2(-3/2)^2 + 7(-3/2) + 6 = 0$

$2(9/4) - 21/2 + 6 = 0$

$9/2 - 21/2 + 12/2 = 0$

$0 = 0$

$2(-2)^2 + 7(-2) + 6 = 0$

$8 - 14 + 6 = 0$

$0 = 0$

3) $(X + 2)(X + 4) = 0$

$X + 2 = 0$ $\quad X + 4 = 0$

$X = -2$ $\quad X = -4$

4) $(-2)^2 + 6(-2) + 8 = 0$

$4 - 12 + 8 = 0$

$0 = 0$

$(-4)^2 + 6(-4) + 8 = 0$

$16 - 24 + 8 = 0$

$0 = 0$

5) $X^2 + 3X - 10 = 0$

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

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

$X = -5$ $\quad X = 2$

6) $(-5)^2 + 3(-5) + 4 = 14$

$25 - 15 + 4 = 14$

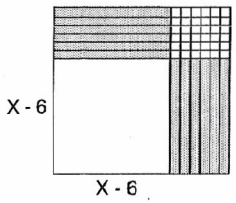
$14 = 14$

$(2)^2 + 3(2) + 4 = 14$

$4 + 6 + 4 = 14$

$14 = 14$

7) $X^2 - 12X + 36$



8)

$X - 6$

$\times \quad X - 6$

$-6X + 36$

$X^2 - 6X$

$X^2 - 12X + 36$

9) $(X - 4)(X + 4)$

10) $(X - 7)(X + 7)$

11) $-16 + 4 = -12$

12) $3^{-1+1} = 3^0 = 1$

13) $X^{4+3} = X^7$

14) $2XY^{-2} - 3X^{-2}Y^3 + 5XY^{-2} = 7XY^{-2} - 3X^{-2}Y^3$

15) $4Y = -2X + 8$

$Y = -1/2\ X + 2$

16) M = 2 (negative reciprocal)

17) 11

18) 2 x 2 x 5 x 5

19) $Y = X - 3$

$-Y = -2X + 4$

$0 = -X + 1$ $\quad Y = (1) - 3$

$X = 1$ $\quad Y = -2$

(1, -2)

20) $(2X)(2X + 1) + 3(2X + 1) =$

$(4X^2 + 2X) + (6X + 3)$

27D

1) $(2X + 1)(X + 4) = 0$

$2X + 1 = 0$ $\quad X + 4 = 0$

$X = -1/2$ $\quad X = -4$

2) $2(-1/2)^2 + 9(-1/2) + 4 = 0$

$2(1/4) - 9/2 + 4 = 0$

$1/2 - 9/2 + 8/2 = 0$

$0 = 0$

$2(-4)^2 + 9(-4) + 4 = 0$

$2(16) - 36 + 4 = 0$

$0 = 0$

3) $(X + 17)(X - 4) = 0$

$X + 17 = 0$ $\quad X - 4 = 0$

$X = -17$ $\quad X = 4$

4) $(-17)^2 + 13(-17) - 68 = 0$

$289 - 221 - 68 = 0$

$0 = 0$

$(4)^2 + 13(4) - 68 = 0$

$16 + 52 - 68 = 0$

$0 = 0$

5) $X^2 - 2X - 3 = 0$

$(X - 3)(X + 1) = 0$

$X - 3 = 0$ $\quad X + 1 = 0$

$X = 3$ $\quad X = -1$

6) $(3)^2 - 2(3) + + 5 = 8$

$9 - 6 + 5 = 8$

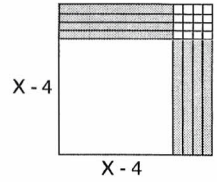
$8 = 8$

$(-1)^2 - 2(-1) + 5 = 8$

$1 + 2 + 5 = 8$

$8 = 8$

7) $X^2 - 8X + 16$



8)

$X - 4$

$\times \quad X - 4$

$-4X + 16$

$X^2 - 4X$

$X^2 - 8X + 16$

9) $(X - Y)(X + Y)$

10) $4(X^2 - Y^2)$

$4(X - Y)(X + Y)$

11) $-9 - 4 = -13$

12) $4^{-2+3} = 4^1 = 4$

13) $X^{6-4} = X^2$

14) $2B^3 - 3B^3 + 5B^5 = 5B^5 - B^3$

15) $(25)(B) = (4)(9)$

$25B = 36$

$B = 36/25 = 1\ 11/25$

16) $(3.4)(15) = (5)(R)$

$51 = 5R$

$R = 51/5 = 10\ 1/5$ or 10.2

17) $520 \div 65 = 8$ hours

18) $240 \div 6 = 40$ mph

19) $Y + 2(4) = -2$ $\quad -10 + 2X = -2$

$Y = -10$ $\quad 2X = 8$

$X = 4$

(4, -10)

20) $(3X + 4)(X + 2) =$ ..... $=$

$(3X^2 + 6X) + (4X + 8)$

27E

1) $(2X + 1)(2X + 3) = 0$

$2X + 1 = 0$ $\quad$ $2X + 3 = 0$

$X = -1/2$ $\quad$ $X = -3/2$

2) $4(-1/2)^2 + 8(-1/2) + 3 = 0$

$4(1/4) - 4 + 3 = 0$

$1 - 4 + 3 = 0$

$0 = 0$

$4(-3/2)^2 + 8(-3/2) + 3 = 0$

$4(9/4) - 24/2 + 3 = 0$

$0 = 0$

3) $(X + 3)(X + 4) = 0$

$X + 3 = 0$ $\quad$ $X + 4 = 0$

$X = -3$ $\quad$ $X = -4$

4) $(-3)^2 + 7(-3) + 12 = 0$

$9 - 21 + 12 = 0$

$0 = 0$

$(-4)^2 + 7(-4) + 12 = 0$

$16 - 28 + 12 = 0$

$0 = 0$

5) $X^2 + X - 12 = 0$

$(X + 4)(X - 3) = 0$

$X + 4 = 0$ $\quad$ $X - 3 = 0$

$X = -4$ $\quad$ $X = 3$

6) $(-4)^2 + (-4) + 1 = 13$

$16 - 4 + 1 = 13$

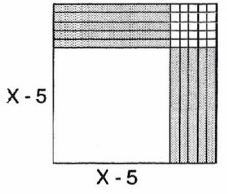
$13 = 13$

$(3)^2 + (3) + 1 = 13$

$9 + 3 + 1 = 13$

$13 = 13$

7) $X^2 - 10X + 25$



8) $X - 5$

$\times \quad X - 5$

$-5X + 25$

$X^2 - 5X$

$X^2 - 10X + 25$

9) $4(4X^2 - 1)$

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

10) $(X - 10)(X + 10)$

11) $9 - 25 = -16$

12) $2^{-4+4} = 2^0 = 1$

13) $X^{-6-6} = X^{-12}$

14) $5M^4N^2M^{-1} - 2NM^4N^3M^{-1} =$

$5M^3N^2 - 2N^4M^3$

15) $8G = 100$

$G = 25/2 = 12\ 1/2$

16) $7T = 200$

$T = 200/7 = 28\ 4/7$

17) $N^2 + 2N - 2$

18) $N^2 + 2N - 2 = 22$

$N^2 + 2N - 24 = 0$

$(N + 6)(N - 4) = 0$

$N = -6$ or $N = 4$

19) $15Y - 3X = -18$

$4Y + 3X = -20$

$19Y = -38$ $\quad$ $5(-2) - X = -6$

$Y = -2$ $\quad$ $-4 = X$

(-4, -2)

20) $(X + 2)(3X + 1) = (X)(3X + 1) + (2)(3X + 1)$

28A

1) 1 foot = 12 inches

2) feet in numerator to remain in final answer
inches in denominator so they will cancel

3) $84 \text{ in.} \times \frac{1 \text{ ft.}}{12 \text{ in.}} = 7 \text{ ft.}$

4) 3 feet = 1 yard

5) yards in numerator to remain in final answer
feet in denominator so they will cancel

6) $63 \text{ ft.} \times \frac{1 \text{ yd.}}{3 \text{ ft.}} = 21 \text{ yds.}$

7) 1 foot = 12 inches

8) inches in numerator to remain in final answer
feet in denominator so they will cancel

9) $15 \text{ ft.} \times \frac{12 \text{ in.}}{1 \text{ ft.}} = 180 \text{ in.}$

10) 4 quarts = 1 gallon

11) quarts in numerator to remain in final answer
gallons in denominator so they will cancel

12) $25 \text{ gal.} \times \frac{4 \text{ qts.}}{1 \text{ gal.}} = 100 \text{ qts.}$

13) 16 ounces = 1 pound

14) pounds in numerator to remain in final answer
ounces in denominator so they will cancel

15) $272 \text{ oz.} \times \frac{1 \text{ lb.}}{16 \text{ oz.}} = 17 \text{ lbs.}$

16) 4 quarts = 1 gallon

17) gallons in numerator to remain in final answer
quarts in denominator so they will cancel

18) $52 \text{ qts.} \times \frac{1 \text{ gal.}}{4 \text{ qts.}} = 13 \text{ gal.}$

28B

1) 1 meter = 100 centimeters

2) cm in numerator to remain in final answer
meters in denominator so they will cancel

3) $14 \text{ m.} \times \frac{100 \text{ cm}}{1 \text{ m}} = 1{,}400 \text{ cm}$

4) 1 kilometer = 1,000 meters

5) meters in numerator to remain in final answer
kilometers in denominator so they will cancel

6) $200 \text{ km} \times \frac{1000 \text{ m}}{1 \text{ km}} = 200{,}000 \text{ m}$

7) 1 dekaliter = 10 liters

8) dekaliters in numerator to remain in final answer
liters in denominator so they will cancel

9) $3{,}500 \text{ liters} \times \frac{1 \text{ dkl}}{10 \text{ liters}} = 350 \text{ dkl}$

10) 1 liter = 1,000 milliliters

11) liters in numerator to remain in final answer
milliliters in denominator so they will cancel

12) $67{,}000 \text{ ml} \times \frac{1 \text{ liter}}{1000 \text{ ml}} = 67 \text{ liters}$

13) 1 hectoliter = 100 liters

14) liters in numerator to remain in final answer
hectoliters in denominator so they will cancel

15) $4.5 \text{ hl} \times \frac{100 \text{ liters}}{1 \text{ hl}} = 450 \text{ liters}$

16) 1 gram = 10 decigrams

17) grams in numerator to remain in final answer
decigrams in denominator so they will cancel

18) $790 \text{ dg} \times \frac{1 \text{ g}}{10 \text{ dg}} = 79 \text{ g}$