22A

1) done
2) 12: 1, 2, 3, 4, 6, 12
   16: 1, 2, 4, 8, 16
   GCF = 4
3) 6: 1, 2, 3, 6
   18: 1, 2, 3, 6, 9, 18
   GCF = 6
4) done
5) 2 x 2 x 3 x 3
6) 2 x 2 x 7
7) 2 x 3 x 7
8) done
9) 28 = 2 x 2 x 7; 36 = 2 x 2 x 3 x 3
   GCF = 2 x 2 = 4
10) 28 = 2 x 2 x 7; 42 = 2 x 3 x 7
    GCF = 2 x 7 =14
11) 24 = 2 x 2 x 2 x 3; 42 = 2 x 3 x 7
    GCF = 2 x 3 = 6
12) 30 = 2 x 3 x 5; 75 = 3 x 5 x 5
    GCF = 3 x 5 = 15
13) 28 = 2 x 2 x 7; 14 = 2 x 7
    GCF = 2 x 7 = 14
14) 8 = 2 x 2 x 2; 24 = 2 x 2 x 2 x 3
    GCF = 2 x 2 x 2 = 8
15) 21 = 3 x 7; 35 = 5 x 7
    GCF = 7

22B

1) 4: 1, 2, 4
   6: 1, 2, 3, 6
   GCF = 2
2) 16: 1, 2, 4, 8, 16
   32: 1, 2, 4, 8, 16, 32
   GCF: = 16
3) 10: 1, 2, 5, 10
   20: 1, 2, 4, 5, 10, 20
   GCF: = 10
4) 5 x 5
5) 5 x 7
6) 2 x 2 x 2 x 5
7) 2 x 2 x 2 x 7
8) 25 = 5 x 5; 35 = 5 x 7
   GCF = 5
9) 35 = 5 x 7; 40 = 2 x 2 x 2 x 5
   GCF = 5
10) 35 = 5 x 7; 56 = 2 x 2 x 2 x 7
    GCF = 7
11) 40 = 2 x 2 x 2 x 5; 56 = 2 x 2 x 2 x 7
    GCF = 2 x 2 x 2 = 8
12) 36 = 2 x 2 x 3 x 3; 48 = 2 x 2 x 2 x 2 x 3
    GCF = 2 x 2 x 3 = 12
13) 66 = 2 x 3 x 11; 90 = 2 x 3 x 3 x 5
    GCF = 2 x 3 = 6
14) 75 = 3 x 5 x 5; 100 = 2 x 2 x 5 x 5
    GCF = 5 x 5 = 25
15) 12 = 2 x 2 x 3; 15 = 3 x 5
    GCF = 3

22C

1) 6: 1, 2, 3, 6
   8: 1, 2, 4, 8
   GCF = 2
2) 15: 1, 3, 5, 15
   20: 1, 2, 4, 5, 10, 20
   GCF = 5
3) 7: 1, 7
   14: 1, 2, 7, 14
   GCF = 7
4) 8 = 2 x 2 x 2
5) 64 = 2 x 2 x 2 x 2 x 2 x 2
6) 16 = 2 x 2 x 2 x 2
7) 20 = 2 x 2 x 5
8) 8 = 2 x 2 x 2; 64 = 2 x 2 x 2 x 2 x 2 x 2
   GCF = 2 x 2 x 2 = 8
9) 8 = 2 x 2 x 2; 20 = 2 x 2 x 5
   GCF = 2 x 2 = 4
10) 64 = 2 x 2 x 2 x 2 x 2 x 2; 16 = 2 x 2 x 2 x 2
    GCF = 2 x 2 x 2 x 2 = 16
11) 16 = 2 x 2 x 2 x 2; 20 = 2 x 2 x 5
    GCF = 2 x 2 = 4
12) 27 = 3 x 3 x 3; 45 = 3 x 3 x 5
    GCF = 3 x 3 = 9
13) 99 = 3 x 3 x 11; 110 = 2 x 5 x 11
    GCF = 11
14) 15 = 3 x 5; 100 = 2 x 2 x 5 x 5
    GCF = 5
15) 32 = 2 x 2 x 2 x 2 x 2; 48 = 2 x 2 x 2 x 2 x 3
    GCF = 2 x 2 x 2 x 2 = 16

22D

1) 36 = 2 x 2 x 3 x 3; 40 = 2 x 2 x 2 x 5
   GCF = 2 x 2 = 4
2) 15 = 3 x 5; 20 = 2 x 2 x 5
   GCF = 5
3) 32 = 2 x 2 x 2 x 2 x 2; 56 = 2 x 2 x 2 x 7
   GCF = 2 x 2 x 2 = 8
4) 3 = 1 x 3; 4 = 2 x 2
   LCM = 2 x 2 x 3 = 12
5) 8 = 2 x 2 x 2; 36 = 2 x 2 x 3 x 3
   LCM = 2 x 2 x 2 x 3 x 3 = 72
6) 10 = 2 x 5; 45 = 3 x 3 x 5
   LCM = 2 x 3 x 3 x 5 = 90
7) $\frac{7}{28} = \frac{2.5}{Q}$; 7 x 4 = 28; 2.5 x 4 = Q = 10
8) $\frac{5}{20} = \frac{3}{R}$; 5 x 4 = 20; 3 x 4 = R = 12
9) ±5
10) ±10
11) ±X
12) .47 x 85 = 39.95
13) .05 x 100 = 5
14) .69 x 12.8 = 8.832
15) $58 x .10 = $5.80
16) 140.1 + 153.09 + 106.25 = 399.44 sq. ft.
17) $\frac{\text{wet}}{\text{dry}} = \frac{1}{2} = \frac{20}{\text{dry}}$; dry = 2 x 20 = 40
18) $\frac{3}{8} \times \frac{1}{6} = \frac{3}{48} = \frac{1}{16}$ of Dad's check
    $320 ÷ 16 = $20

22E

1) $12 = \underline{2} \times 2 \times \underline{3}$; $18 = \underline{2} \times \underline{3} \times 3$
   GCF $= 2 \times 3 = 6$
2) $30 = 2 \times \underline{3} \times \underline{5}$; $45 = 3 \times \underline{3} \times \underline{5}$
   GCF $= 3 \times 5 = 15$
3) $10 = \underline{2} \times \underline{5}$; $100 = \underline{2} \times 2 \times \underline{5} \times 5$
   GCF $= 2 \times 5 = 10$
4) $15 = 3 \times 5$; $18 = 2 \times 3 \times 3$
   LCM $= 2 \times 3 \times 3 \times 5 = 90$
5) $6 = 2 \times 3$; $10 = 2 \times 5$
   LCM $= 2 \times 3 \times 5 = 30$
6) $3 = 3 \times 1$; $5 = 5 \times 1$
   LCM $= 3 \times 5 = 15$
7) $\frac{5}{10} = \frac{8}{X}$; $5X = 80$; $X = 16$
8) $\frac{2}{2} = \frac{Y}{6}$; $Y = 6$
9) 7.261
10) .69
11) $.75 \div .3 = 2.5$
12) $.13 \times 61 = 7.93$
13) $.06 \times 2.45 = .147$
14) $.10 \times 950 = 95$
15) $16X + 5X - 8 = |-97|$
    $21X - 8 = 97$
    $21X = 105$
    $X = 5$
16) $3(2Y - 11) = 3(7)$
    $6Y - 33 = 21$
    $6Y = 54$
    $Y = 9$
17) $A - 8 + 6(3) = 13$
    $A + 18 = 13 + 8$
    $A = 21 - 18$
    $A = 3$
18) $.25 \times \$49 = \$12.25$ off
    $\$49 - \$12.25 = \$36.75$
19) $\$36.75 \times 1.06 = \$38.96$ rounded
20) $\frac{F}{B} = \frac{4}{5} = \frac{8}{B}$; $4B = 40$; B = 10 biographies

22F

1) $75 = \underline{3} \times \underline{5} \times 5$; $45 = \underline{3} \times 3 \times \underline{5}$
   GCF $= 3 \times 5 = 15$
2) $7 = \underline{7} \times 1$; $21 = 3 \times \underline{7}$
   GCF $= 7$
3) $33 = 3 \times \underline{11}$; $55 = 5 \times \underline{11}$
   GCF $= 11$
4) $5 = 1 \times 5$; $10 = 2 \times 5$
   LCM $= 2 \times 5 = 10$
5) $8 = 2 \times 2 \times 2$; $24 = 2 \times 2 \times 2 \times 3$
   LCM $= 2 \times 2 \times 2 \times 3 = 24$
6) $7 = 7 \times 1$; $5 = 5 \times 1$
   LCM $= 7 \times 5 = 35$
7) $46 \times 2 = 92$; $28 \times 2 = F = 56$
8) $\frac{10}{15} = \frac{D}{36}$; $15D = 360$; $D = 24$
9) -34
10) -540
11) -4
12) $.75 \times 100 = 75$
13) $.03 \times 14.6 = .438$
14) $.11 \times .67 = .0737$
15) $3 \div 4 = .75 = 75\%$
16) $1 \div 2 = .50 = 50\%$
17) $7 \div 9 = .77\frac{7}{9} = 77\frac{7}{9}\%$
18) $10 \div 2 = 5$
19) $\$25.56 + \$6.78 = \$32.34$
    $\$32.34 - \$16.16 = \$16.18$
20) $\frac{\text{snowy}}{\text{total}} = \frac{3}{7} = \frac{\text{snowy}}{28}$
    7 x snowy = 84; snowy = 12
    28 - 12 = 16 not snowy

23A

1) 3
2) 2
3) C: $X^2 + 2X + 2$
4) D: $X^2 + 3X + 4$
5) B: $3X^2 + 6$
6) A: $X^2 + 4X + 3$
7) done
8) $X^2 + 3X + 6$
   $+ X^2 - 2X + 8$
   $2X^2 + X + 14$
9) $4X^2 - 6X - 6$
   $+ 2X^2 + 2X - 3$
   $6X^2 - 4X - 9$
10) $8X^2 + 2X - 15$
    $+ X^2 - 7X + 20$
    $9X^2 - 5X + 5$
11) $6X^2 - 10X + 3$
    $+ 2X^2 - 5X - 8$
    $8X^2 - 15X - 5$
12) $X^2 - 3X + 9$
    $+ 2X^2 - 6X - 11$
    $3X^2 - 9X - 2$

23B

1) trinomial
2) X
3) C: $X^2 + 9X + 2$
4) D: $3X^2 + 2X + 5$
5) A: $X^2 + 4X + 1$
6) B: $2X^2 + 3X$
7) $5X^2 + 3X - 2$
   $+ 3X^2 + 2X - 5$
   $8X^2 + 5X - 7$
8) $4X^2 - 6X + 8$
   $+ X^2 - 2X - 10$
   $5X^2 - 8X - 2$
9) $5X^2 - 2X + 4$
   $+ 2X^2 - 3X + 6$
   $7X^2 - 5X + 10$
10) $7X^2 - 3X + 6$
    $-3X^2 - 6X + 2$
    $4X^2 - 9X + 8$
11) $8X^2 - 3X + 2$
    $-4X^2 - 5X - 8$
    $4X^2 - 8X - 6$
12) $-3X^2 - 6X + 8$
    $+ 4X^2 + 5X - 7$
    $X^2 - X + 1$

23C

1) 2
2) 3
3) C: $X^2 + X$
4) D: $X^2 + 1$
5) A: $2X^2 + 3X + 4$
6) B: $2X^2 + 5X + 2$
7) $-4X^2 + 3X - 3$
   $+ 4X^2 + 2X - 7$
   $5X - 10$
8) $2X^2 + X - 6$
   $-2X^2 - 3X + 2$
   $-2X - 4$
9) $3X^2 - 4X - 7$
   $-2X^2 + 2X + 10$
   $X^2 - 2X + 3$
10) $6X^2 + 3X - 3$
    $-7X^2 + 2X + 5$
    $-X^2 + 5X + 2$
11) $4X^2 + X - 3$
    $-6X^2 - 3X + 2$
    $-2X^2 - 2X - 1$
12) $-2X^2 + 8X + 1$
    $+ 5X^2 - 3X - 9$
    $3X^2 + 5X - 8$