

22E

- 1) $12 = 2 \times 2 \times 3$; $18 = 2 \times 3 \times 3$
GCF = $2 \times 3 = 6$
- 2) $30 = 2 \times 3 \times 5$; $45 = 3 \times 3 \times 5$
GCF = $3 \times 5 = 15$
- 3) $10 = 2 \times 5$; $100 = 2 \times 2 \times 5 \times 5$
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) $75 = 3 \times 5 \times 5$; $45 = 3 \times 3 \times 5$
GCF = $3 \times 5 = 15$
- 2) $7 = 7 \times 1$; $21 = 3 \times 7$
GCF = 7
- 3) $33 = 3 \times 11$; $55 = 5 \times 11$
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) $\frac{\text{snowy}}{\text{total}} = \frac{3}{7} = \frac{\text{snowy}}{28}$
 $7 \times \text{snowy} = 84$; $\text{snowy} = 12$
 $28 - 12 = 16$ 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) $-2X^2 + 8X + 1$
 $+ 5X^2 - 3X - 9$

 $3X^2 + 5X - 8$

23D

$$\begin{array}{r} 1) \quad -3X^2 + 6X - 8 \\ + 2X^2 - 2X + 9 \\ \hline -X^2 + 4X + 1 \end{array}$$

$$\begin{array}{r} 2) \quad 5X^2 + 3X + 2 \\ - 3X^2 - 2X + 5 \\ \hline 2X^2 + X + 7 \end{array}$$

$$\begin{array}{r} 3) \quad 8X^2 - 3X + 9 \\ - 3X^2 - 2X - 2 \\ \hline 5X^2 - 5X + 7 \end{array}$$

$$4) \quad 3 = 3 \times 1; 6 = 2 \times 3 \\ \text{LCM} = 2 \times 3 = 6$$

$$5) \quad 11 = 11 \times 1; 22 = 2 \times 11 \\ \text{GCF} = 11$$

$$6) \quad \frac{X}{31} = \frac{42}{93}; X = 14$$

$$7) \quad \frac{16}{19} = \frac{64}{A}; 16A = 64 \times 19 \\ A = 4 \times 19 = 76$$

$$8) \quad \frac{5}{9} = \frac{55}{Y}; 5Y = 55 \times 9 \\ Y = 11 \times 9 = 99$$

$$9) \quad 1 \div 9 = .11 \text{ (rounded)}$$

$$10) \quad 3 \div 7 = .43 \text{ (rounded)}$$

$$11) \quad 25 \div 100 = .25$$

$$12) \quad 2(5 \times 15) + 2(5 \times 15) + 2(5 \times 5) = \\ 150 + 150 + 50 = 350 \text{ sq. in.}$$

$$13) \quad 4(20 \times 12.8 \div 2) + 20 \times 20 = \\ 512 + 400 = 912 \text{ sq. in.}$$

$$14) \quad \text{done}$$

$$15) \quad 4.00 \times 25 = 100$$

$$16) \quad 2.25 \times .5 = 1.125$$

$$17) \quad \$75 \times 1.30 = \$97.50 \\ \$97.50 - \$75 = \$22.50$$

$$18) \quad \frac{9}{5} \times 100^\circ = 180^\circ; \\ 180^\circ + 32^\circ = 212^\circ$$

23E

$$\begin{array}{r} 1) \quad -4X^2 + 7X - 7 \\ + 3X^2 - 3X + 8 \\ \hline -X^2 + 4X + 1 \end{array}$$

$$\begin{array}{r} 2) \quad X^2 + 2X + 3 \\ - 4X^2 - 6X + 5 \\ \hline -3X^2 - 4X + 8 \end{array}$$

$$\begin{array}{r} 3) \quad 5X^2 - 3X + 3 \\ - 2X^2 - 2X - 3 \\ \hline 3X^2 - 5X + 0 \end{array}$$

$$4) \quad 4 = 2 \times 2; 12 = 2 \times 2 \times 3 \\ \text{LCM} = 2 \times 2 \times 3 = 12$$

$$5) \quad 6 = 2 \times 3; 16 = 2 \times 2 \times 2 \times 2 \\ \text{GCF} = 2$$

$$6) \quad 6 \times 5 = 30; D \times 5 = 25; D = 5$$

$$7) \quad 9 \times 2 = 18; F \times 2 = 48; F = 24$$

$$8) \quad 20G = 15 \times 44 \\ 4G = 3 \times 44; G = 3 \times 11 = 33$$

$$9) \quad 3 \frac{25}{100} = 3 \frac{1}{4}$$

$$10) \quad \frac{45}{100} = \frac{9}{20}$$

$$11) \quad \frac{8}{100} = \frac{2}{25}$$

$$12) \quad 2(4 \times 8.5) + 2(8.5 \times 6) + 2(6 \times 4) = \\ 68 + 102 + 48 = 218 \text{ sq. in.}$$

$$13) \quad 1.2 \times 1.2 + 4(3.5 \times 1.2 \div 2) = \\ 1.44 + 8.4 = 9.84 \text{ sq. ft.}$$

$$14) \quad 2.10 \times 50 = 105$$

$$15) \quad 1.20 \times 4.5 = 5.4$$

$$16) \quad 5.00 \times 38 = 190$$

$$17) \quad 2 \frac{1}{3} + 1 \frac{1}{6} = 2 \frac{2}{6} + 1 \frac{1}{6} = 3 \frac{3}{6} = 3 \frac{1}{2}$$

$$18) \quad \$45.99 \times .30 = \$13.80 \text{ (rounded)} \\ \$45.99 - \$13.80 = \$32.19$$

$$19) \quad 5X - 5 - 9 = 36 \\ 5X - 14 = 36 \\ 5X = 50 \\ X = 10$$

$$20) \quad \$45.98 \times 1.20 = \$55.18 \text{ (rounded)}$$

23F

$$\begin{array}{r} 1) \quad 8X^2 - 5X - 2 \\ - 7X^2 + 4X + 5 \\ \hline X^2 - X + 3 \end{array}$$

$$\begin{array}{r} 2) \quad 4X^2 + 2X + 5 \\ + 2X^2 + 7X - 2 \\ \hline 6X^2 + 9X + 3 \end{array}$$

$$\begin{array}{r} 3) \quad -X^2 - X - 1 \\ - 2X^2 + X + 3 \\ \hline -3X^2 + 2 \end{array}$$

$$4) \quad 10 = 2 \times 5; 100 = 2 \times 2 \times 5 \times 5 \\ \text{LCM} = 2 \times 2 \times 5 \times 5 = 100$$

$$5) \quad 16 = 2 \times 2 \times 2 \times 2; 64 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \\ \text{GCF} = 2 \times 2 \times 2 \times 2 = 16$$

$$6) \quad 100 = 4 \times 25; R = 3 \times 25 = 75$$

$$7) \quad 36 = 2 \times 18; X = 3 \times 18 = 54$$

$$8) \quad 98 = 2 \times 49; 100 = 2 \times Q; Q = 50$$

$$9) \quad 225$$

$$10) \quad 144$$

$$11) \quad 81$$

$$12) \quad 2(8 \times 13.4) + 2(13.4 \times 10) + 2(8 \times 10) = \\ 214.4 + 268 + 160 = 642.4 \text{ sq. in.}$$

$$13) \quad .4 \times .4 + 4(.8 \times .4 \div 2) = \\ .16 + .64 = .8 \text{ sq. ft.}$$

$$14) \quad 6.00 \times 1.2 = 7.2$$

$$15) \quad 1.50 \times 22.4 = 33.6$$

$$16) \quad 2.25 \times 80 = 180$$

$$17) \quad (350^\circ - 32^\circ) \times 5/9 = 177^\circ (178.1^\circ)$$

$$18) \quad \frac{1}{6} + \frac{1}{5} + \frac{1}{4} = \frac{5}{30} + \frac{6}{30} + \frac{1}{4} = \\ \frac{11}{30} + \frac{1}{4} = \frac{44}{120} + \frac{30}{120} = \frac{74}{120} = \frac{37}{60}$$

$$19) \quad 20^2 = 16^2 + L^2 \\ 400 = 256 + L^2 \\ 144 = L^2 \\ L = 12 \text{ ft.}$$

$$20) \quad 2.00 \times 5 = 10 \text{ in.}$$

24A

$$1) \quad \text{done}$$

$$2) \quad V = 3.14(9)^2 \times 25 \\ V = 3.14 \times 81 \times 25 \\ V = 6,358.5 \text{ cu. ft.}$$

$$3) \quad 3.14(14)^2 \times 12 = \\ 3.14 \times 196 \times 12 = \\ 7,385.28 \text{ cu. in.}$$

$$4) \quad 3.14(8)^2 \times 16 = \\ 3.14 \times 64 \times 16 = \\ 3,215.36 \text{ cu. ft.}$$

$$5) \quad 3.14(5)^2 \times 6 = \\ 3.14 \times 25 \times 6 = \\ 471 \text{ cu. yds.}$$

$$6) \quad 3.14(4)^2 \times 12 = \\ 3.14 \times 16 \times 12 = \\ 602.88 \text{ cu. ft.}$$

$$7) \quad 3.14(1)^2 \times 3 = \\ 3.14 \times 1 \times 3 = \\ 9.42 \text{ cu. in.}$$

$$8) \quad 3.14(40)^2 \times 2 = \\ 3.14 \times 1,600 \times 2 = \\ 10,048 \text{ cu. mi.}$$