

23D

- 1)
$$\begin{array}{r} -3X^2 + 6X - 8 \\ + 2X^2 - 2X + 9 \\ \hline -X^2 + 4X + 1 \end{array}$$
- 2)
$$\begin{array}{r} 5X^2 + 3X + 2 \\ -3X^2 - 2X + 5 \\ \hline 2X^2 + X + 7 \end{array}$$
- 3)
$$\begin{array}{r} 8X^2 - 3X + 9 \\ -3X^2 - 2X - 2 \\ \hline 5X^2 - 5X + 7 \end{array}$$
- 4) $3 = 3 \times 1$; $6 = 2 \times 3$
LCM = $2 \times 3 = 6$
- 5) $11 = 11 \times 1$; $22 = 2 \times 11$
GCF = 11
- 6) $\frac{X}{31} = \frac{42}{93}$; $X = 14$
- 7) $\frac{16}{19} = \frac{64}{A}$; $16A = 64 \times 19$
 $A = 4 \times 19 = 76$
- 8) $\frac{5}{9} = \frac{55}{Y}$; $5Y = 55 \times 9$
 $Y = 11 \times 9 = 99$
- 9) $1 \div 9 = .11$ (rounded)
- 10) $3 \div 7 = .43$ (rounded)
- 11) $25 \div 100 = .25$
- 12) $2(5 \times 15) + 2(5 \times 15) + 2(5 \times 5) =$
 $150 + 150 + 50 = 350$ sq. in.
- 13) $4(20 \times 12.8 \div 2) + 20 \times 20 =$
 $512 + 400 = 912$ sq. in.
- 14) done
- 15) $4.00 \times 25 = 100$
- 16) $2.25 \times .5 = 1.125$
- 17) $\$75 \times 1.30 = \97.50
 $\$97.50 - \$75 = \$22.50$
- 18) $\frac{9}{5} \times 100^\circ = 180^\circ$;
 $180^\circ + 32^\circ = 212^\circ$

23E

- 1)
$$\begin{array}{r} -4X^2 + 7X - 7 \\ + 3X^2 - 3X + 8 \\ \hline -X^2 + 4X + 1 \end{array}$$
- 2)
$$\begin{array}{r} X^2 + 2X + 3 \\ -4X^2 - 6X + 5 \\ \hline -3X^2 - 4X + 8 \end{array}$$
- 3)
$$\begin{array}{r} 5X^2 - 3X + 3 \\ -2X^2 - 2X - 3 \\ \hline 3X^2 - 5X + 0 \end{array}$$
- 4) $4 = 2 \times 2$; $12 = 2 \times 2 \times 3$
LCM = $2 \times 2 \times 3 = 12$
- 5) $6 = 2 \times 3$; $16 = 2 \times 2 \times 2 \times 2$
GCF = 2
- 6) $6 \times 5 = 30$; $D \times 5 = 25$; $D = 5$
- 7) $9 \times 2 = 18$; $F \times 2 = 48$; $F = 24$
- 8) $20G = 15 \times 44$
 $4G = 3 \times 44$; $G = 3 \times 11 = 33$
- 9) $3\frac{25}{100} = 3\frac{1}{4}$
- 10) $\frac{45}{100} = \frac{9}{20}$
- 11) $\frac{8}{100} = \frac{2}{25}$
- 12) $2(4 \times 8.5) + 2(8.5 \times 6) + 2(6 \times 4) =$
 $68 + 102 + 48 = 218$ sq. in.
- 13) $1.2 \times 1.2 + 4(3.5 \times 1.2 \div 2) =$
 $1.44 + 8.4 = 9.84$ sq. ft.
- 14) $2.10 \times 50 = 105$
- 15) $1.20 \times 4.5 = 5.4$
- 16) $5.00 \times 38 = 190$
- 17) $2\frac{1}{3} + 1\frac{1}{6} = 2\frac{2}{6} + 1\frac{1}{6} = 3\frac{3}{6} = 3\frac{1}{2}$
- 18) $\$45.99 \times .30 = \13.80 (rounded)
 $\$45.99 - \$13.80 = \$32.19$
- 19) $5X - 5 - 9 = 36$
 $5X - 14 = 36$
 $5X = 50$
 $X = 10$
- 20) $\$45.98 \times 1.20 = \55.18 (rounded)

23F

- 1)
$$\begin{array}{r} 8X^2 - 5X - 2 \\ -7X^2 + 4X + 5 \\ \hline X^2 - X + 3 \end{array}$$
- 2)
$$\begin{array}{r} 4X^2 + 2X + 5 \\ + 2X^2 + 7X - 2 \\ \hline 6X^2 + 9X + 3 \end{array}$$
- 3)
$$\begin{array}{r} -X^2 - X - 1 \\ -2X^2 + X + 3 \\ \hline -3X^2 + 2 \end{array}$$
- 4) $10 = 2 \times 5$; $100 = 2 \times 2 \times 5 \times 5$
LCM = $2 \times 2 \times 5 \times 5 = 100$
- 5) $16 = 2 \times 2 \times 2 \times 2$; $64 = 2 \times 2 \times 2 \times 2 \times 2 \times 2$
GCF = $2 \times 2 \times 2 \times 2 = 16$
- 6) $100 = 4 \times 25$; $R = 3 \times 25 = 75$
- 7) $36 = 2 \times 18$; $X = 3 \times 18 = 54$
- 8) $98 = 2 \times 49$; $100 = 2 \times Q$; $Q = 50$
- 9) 225
- 10) 144
- 11) 81
- 12) $2(8 \times 13.4) + 2(13.4 \times 10) + 2(8 \times 10) =$
 $214.4 + 268 + 160 = 642.4$ sq. in.
- 13) $.4 \times .4 + 4(.8 \times .4 \div 2) =$
 $.16 + .64 = .8$ sq. ft.
- 14) $6.00 \times 1.2 = 7.2$
- 15) $1.50 \times 22.4 = 33.6$
- 16) $2.25 \times 80 = 180$
- 17) $(350^\circ - 32) \times 5/9 = 177^\circ$ (178.1°)
- 18) $\frac{1}{6} + \frac{1}{5} + \frac{1}{4} = \frac{5}{30} + \frac{6}{30} + \frac{1}{4} =$
 $\frac{11}{30} + \frac{1}{4} = \frac{44}{120} + \frac{30}{120} = \frac{74}{120} = \frac{37}{60}$
- 19) $20^2 = 16^2 + L^2$
 $400 = 256 + L^2$
 $144 = L^2$
 $L = 12$ ft.
- 20) $2.00 \times 5 = 10$ in.

24A

- 1) done
- 2) $V = 3.14(9)^2 \times 25$
 $V = 3.14 \times 81 \times 25$
 $V = 6,358.5$ cu. ft.
- 3) $3.14(14)^2 \times 12 =$
 $3.14 \times 196 \times 12 =$
 $7,385.28$ cu. in
- 4) $3.14(8)^2 \times 16 =$
 $3.14 \times 64 \times 16 =$
 $3,215.36$ cu. ft.
- 5) $3.14(5)^2 \times 6 =$
 $3.14 \times 25 \times 6 =$
 471 cu. yds.
- 6) $3.14(4)^2 \times 12 =$
 $3.14 \times 16 \times 12 =$
 602.88 cu. ft.
- 7) $3.14(1)^2 \times 3 =$
 $3.14 \times 1 \times 3 =$
 9.42 cu. in.
- 8) $3.14(40)^2 \times 2 =$
 $3.14 \times 1,600 \times 2 =$
 $10,048$ cu. mi.

24B

- 1) $V = 3.14(8)^2 \times 10$
 $V = 3.14 \times 64 \times 10$
 $V = 2,009.6$ cu. in.
- 2) $3.14(5)^2 \times 13 =$
 $3.14 \times 25 \times 13 =$
 $1,020.5$ cu. ft.
- 3) $3.14(5)^2 \times 6 =$
 $3.14 \times 25 \times 6 =$
 471 cu. in.
- 4) $3.14(4)^2 \times 11 =$
 $3.14 \times 16 \times 11 =$
 552.64 cu. ft.
- 5) $3.14(7)^2 \times 3 =$
 $3.14 \times 49 \times 3 =$
 461.58 cu. yds.
- 6) $3.14(3)^2 \times 20 =$
 $3.14 \times 9 \times 20 =$
 565.2 cu. ft.
- 7) $3.14(1.5)^2 \times 6.5 =$
 3.14×2.3 (rounded) $\times 6.5 =$
 47.0 cu. in. (rounded)
- 8) $3.14(10)^2 \times 40 =$
 $3.14 \times 100 \times 40 =$
 $12,560$ cu. ft.

24C

- 1) $V = 3.14(3)^2 \times 8$
 $V = 3.14 \times 9 \times 8$
 $V = 226.08$ cu. in.
- 2) $3.14(10)^2 \times 20 =$
 $3.14 \times 100 \times 20 =$
 $6,280$ cu. ft.
- 3) $3.14(15)^2 \times 8 =$
 $3.14 \times 225 \times 8 =$
 $5,652$ cu. in.
- 4) $3.14(4)^2 \times 7.5 =$
 $3.14 \times 16 \times 7.5 =$
 376.8 cu. ft.
- 5) $3.14(1)^2 \times 2.2 =$
 $3.14 \times 1 \times 2.2 =$
 6.908 cu. yds.
- 6) $3.14(2.5)^2 \times 13 =$
 $3.14 \times 6.25 \times 13 =$
 255.125 cu. ft.
- 7) $3.14(2)^2 \times 7.5 =$
 $3.14 \times 4 \times 7.5 =$
 94.2 cu. in.
- 8) $3.14(3.5)^2 \times 9 =$
 $3.14 \times 12.25 \times 9 =$
 346.19 cu. ft. (rounded)

24D

- 1) $3.14 \times (5)^2 \times 9 = 706.5$ cu. in.
- 2) $3.14 \times (4)^2 \times 8 = 401.92$ cu. ft.
- 3)
$$\begin{array}{r} X^2 + 5X + 3 \\ + 2X^2 + 7X + 9 \\ \hline 3X^2 + 12X + 12 \end{array}$$
- 4)
$$\begin{array}{r} 4X^2 + 6X + 2 \\ + 7X^2 + 3X + 8 \\ \hline 11X^2 + 9X + 10 \end{array}$$
- 5)
$$\begin{array}{r} 5X^2 + 9X + 8 \\ - 4X^2 - 6X - 1 \\ \hline X^2 + 3X + 7 \end{array}$$
- 6) $2 = 1 \times 2; 7 = 7 \times 1$
 $\text{LCM} = 2 \times 7 = 14$
- 7) $15 = 3 \times 5; 20 = 2 \times 2 \times 5$
 $\text{GCF} = 5$
- 8) $.75 = 75\%$
- 9) $.50 = 50\%$
- 10) $.80 = 80\%$
- 11) plane
- 12) point
- 13) line segment
- 14) line
- 15) $32^\circ \text{ F}; 0^\circ \text{ C}$
- 16) $3.14 \times (5)^2 \times 25 = 1,962.5$ cu. ft.
- 17) $200\% = 200/100 = 2.00$
 $2 \times 45 = 90$ people needed
- 18) $\frac{R}{G} = \frac{5}{7}; \frac{25}{G} = \frac{5}{7}; G = 35$

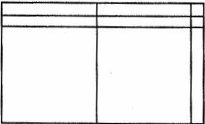
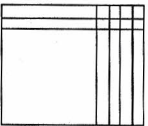
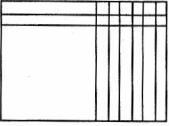
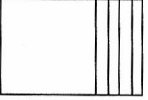
24E

- 1) $3.14 \times (10)^2 \times 14.6 = 4,584.4$ cu. in.
- 2) $3.14 \times (8)^2 \times 22 = 4,421.12$ cu. ft.
- 3)
$$\begin{array}{r} 4X^2 + X - 3 \\ + -6X^2 - 3X + 2 \\ \hline -2X^2 - 2X - 1 \end{array}$$
- 4)
$$\begin{array}{r} -2X^2 + 8X + 1 \\ + 5X^2 - 3X - 9 \\ \hline 3X^2 + 5X - 8 \end{array}$$
- 5)
$$\begin{array}{r} 2X^2 + 4X + 3 \\ + 3X^2 + 6X + 8 \\ \hline 5X^2 + 10X + 11 \end{array}$$
- 6) $3 = 3 \times 1; 15 = 3 \times 5$
 $\text{LCM} = 3 \times 5 = 15$
- 7) $12 = 2 \times 2 \times 3; 16 = 2 \times 2 \times 2 \times 2$
 $\text{GCF} = 2 \times 2 = 4$
- 8) $20/100 = 1/5$
- 9) $10/100 = 1/10$
- 10) $35/100 = 7/20$
- 11) b
- 12) c
- 13) d
- 14) a
- 15) 3 yards = 9 feet
 $3.14(9)^2 \times 5 = 1,271$ cu. ft. (rounded)
- 16) $1,271 \times 7 = 8,897$ gal.
 (using rounded answer from #15)
- 17) $82^\circ - 32 = 50; 50 \times 5/9 = 27.8^\circ \text{ C}$ (28°)
- 18) $1/2 = 50\%; 60\% > 50\%$
- 19) $.60 \times \$25 = \$15;$
 $\$25 - \$15 = \$10$
- 20) $6 \times 40 = 240$ mi.

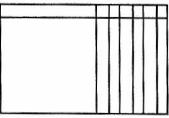
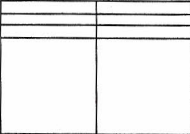
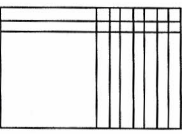
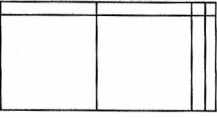
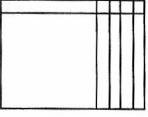
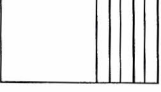
24F

- 1) $3.14 \times (6)^2 \times 15 = 1,695.6$ cu. in.
- 2) $3.14 \times (7)^2 \times 25 = 3,846.5$ cu. ft.
- 3)
$$\begin{array}{r} 6X^2 + 5X + 10 \\ + 5X^2 + 9X + 2 \\ \hline 11X^2 + 14X + 12 \end{array}$$
- 4)
$$\begin{array}{r} 7X^2 + 7X + 5 \\ + -5X^2 - 4X - 3 \\ \hline 2X^2 + 3X + 2 \end{array}$$
- 5)
$$\begin{array}{r} 4X^2 + 8X + 9 \\ + -3X^2 + 2X - 6 \\ \hline X^2 + 10X + 3 \end{array}$$
- 6) $4 = 2 \times 2$; $9 = 3 \times 3$
LCM = $2 \times 2 \times 3 \times 3 = 36$
- 7) $6 = 2 \times 3$; $21 = 3 \times 7$
GCF = 3
- 8) $\frac{300}{100} = 3$
- 9) $\frac{250}{100} = 2 \frac{50}{100} = 2 \frac{1}{2}$
- 10) $\frac{175}{100} = 1 \frac{75}{100} = 1 \frac{3}{4}$
- 11) line
- 12) line segment
- 13) point
- 14) plane
- 15) $\frac{9}{10} = \frac{90}{100} = .90 = 90\%$
- 16) $\frac{19}{20} = \frac{95}{100} = 95\%$
- 17) no: normal body temperature in Celsius is 37°
- 18) yes; 0° C is the freezing point of water
- 19) $2(8 \times 16) + 2(8 \times 22) = 256 + 352 = 608$ sq. ft.
- 20) 2 gal. ($2 \times 400 = 800$ sq. ft.)

25A

- 1) done
- 2) done
- 3) 
 $2X^2 + 5X + 2$
- 4) 
 $X^2 + 6X + 8$
- 5) 
 $X^2 + 8X + 12$
- 6) 
 $X^2 + 4X$
- 7) done
- 8)
$$\begin{array}{r} X + 7 \\ \times X + 1 \\ \hline X^2 + 7X \\ X^2 + 8X + 7 \end{array}$$
- 9)
$$\begin{array}{r} X + 6 \\ \times X + 3 \\ \hline 3X + 18 \\ X^2 + 6X \\ \hline X^2 + 9X + 18 \end{array}$$
- 10) done
- 11) done
- 12) $(X + 7)(X + 3) = X^2 + 10X + 21$
 $(10)^2 + 10(10) + 21 =$
 $100 + 100 + 21 = 221$

25B

- 1) 
 $X^2 + 7X + 6$
- 2) 
 $2X^2 + 6X$
- 3) 
 $X^2 + 9X + 14$
- 4) 
 $2X^2 + 4X + 2$
- 5) 
 $X^2 + 5X + 4$
- 6) 
 $X^2 + 5X$
- 7)
$$\begin{array}{r} X + 8 \\ \times X + 2 \\ \hline 2X + 16 \\ X^2 + 8X \\ \hline X^2 + 10X + 16 \end{array}$$
- 8)
$$\begin{array}{r} X + 9 \\ \times X + 6 \\ \hline 6X + 54 \\ X^2 + 9X \\ \hline X^2 + 15X + 54 \end{array}$$
- 9)
$$\begin{array}{r} 2X + 9 \\ \times X + 2 \\ \hline 4X + 18 \\ 2X^2 + 9X \\ \hline 2X^2 + 13X + 18 \end{array}$$
- 10)
$$\begin{array}{r} X + 7 \\ \times X + 6 \\ \hline 6X + 42 \\ X^2 + 7X \\ \hline X^2 + 13X + 42 \end{array}$$
- 11)
$$\begin{array}{r} X + 5 \\ \times X + 4 \\ \hline 4X + 20 \\ X^2 + 5X \\ \hline X^2 + 9X + 20 \end{array}$$
- 12)
$$\begin{array}{r} 2X + 3 \\ \times X + 1 \\ \hline 2X + 3 \\ 2X^2 + 3X \\ \hline 2X^2 + 5X + 3 \end{array}$$
- 13) $(X + 3)(X + 4) =$
 $X^2 + 7X + 12$
- 14) $(4)^2 + 7(4) + 12 =$
 $16 + 28 + 12 = 56$
 $(8)^2 + 7(8) + 12 =$
 $64 + 56 + 12 = 132$
- 15) $R(R + 5) = R^2 + 5R$