

- 1) $\frac{3}{16}V - 3 = 12$
 $\frac{3}{16}V = 15$
 $\frac{16}{3} \cdot \frac{3}{16}V = \frac{15}{1} \cdot \frac{16}{3}$
 $V = \frac{240}{3} = 80$
- 2) $\frac{3}{16}(80) - 3 = 12$
 $\frac{3}{16}\left(\frac{80}{1}\right) - 3 = 12$
 $\frac{240}{16} - 3 = 12$
 $15 - 3 = 12$
 $12 = 12$
- 3) $5Q + 4 = 19$
 $5Q = 15$
 $\frac{1}{5} \cdot 5Q = \frac{15}{1} \cdot \frac{1}{5}$
 $Q = \frac{15}{5} = 3$
- 4) $5(3) + 4 = 19$
 $15 + 4 = 19$
 $19 = 19$
- 5) $\frac{22}{7}(2^2) = \frac{22}{7} \cdot \frac{4}{1} =$
 $\frac{88}{7} = 12\frac{4}{7}$ sq. in.
- 6) $\frac{2}{1} \cdot \frac{22}{7} \cdot \frac{2}{1} =$
 $\frac{88}{7} = 12\frac{4}{7}$ in.

- 7) $\frac{2}{1} \times \frac{3}{10} \times \frac{5}{6} = \frac{1}{2}$
- 8) $\frac{2}{3} \times \frac{2}{5} \times \frac{14}{5} \times \frac{2}{6} \times \frac{6}{11} = \frac{8}{11}$
- 9) $\frac{1}{2} + \frac{1}{10} = \frac{1}{2} \times \frac{10}{1} = \frac{10}{2} = 5$
- 10) $\frac{37}{8} + \frac{41}{12} = \frac{37}{28} \times \frac{12^3}{41} =$
 $\frac{111}{82} = 1\frac{29}{82}$
- 11) 256 oz. > 1 oz.
- 12) 2,640 ft. = 2,640 ft.
- 13) 9 in. < 10 in.
- 14) $4 + 8 + 10 + 14 = 36$
 $36 \div 4 = 9$
- 15) $6 + 7 + 9 + 14 = 36$
 $36 \div 4 = 9$
- 16) $6 + 6 + 12 = 24$
 $24 \div 3 = 8$
- 17) $2\frac{1}{4} + 1\frac{1}{4} = 3\frac{2}{4} = 3\frac{1}{2}$
 $3\frac{1}{2} + 1\frac{1}{2} = 4\frac{2}{2} = 5$
 $5 \div 3 = \frac{5}{3} = 1\frac{2}{3}$ mi.
- 18) $\frac{4}{3} \times \frac{4}{3} \times \frac{4}{3} = \frac{64}{27} = 2\frac{10}{27}$ cu. in.
- 19) 30: 2, 3, 5, 6, 10, 15, 30
 45: 3, 5, 9, 15, 45
 GCF = 15
- 20) 15

- 1) done
- 2) $\frac{1}{2} = \frac{5}{10} = .5 = \frac{50}{100} = .50$
- 3) $\frac{4}{5} = \frac{8}{10} = .8 = \frac{80}{100} = .80$
- 4) done
- 5) $\frac{5}{5} = \frac{100}{100} = 100\%$
- 6) done
- 7) $\frac{1}{2} = \frac{50}{100} = .50 = 50\%$

29B

- 1) done
- 2) $\frac{3}{4} = \frac{75}{100} = .75$
- 3) $\frac{2}{5} = \frac{4}{10} = .4 = \frac{40}{100} = .40$
- 4) $\frac{3}{5} = \frac{60}{100} = 60\%$
- 5) $\frac{4}{5} = \frac{80}{100} = 80\%$
- 6) $\frac{1}{4} = \frac{25}{100} = .25 = 25\%$
- 7) $\frac{3}{4} = \frac{75}{100} = .75 = 75\%$

- 1) $\frac{1}{5} = \frac{2}{10} = .2 = \frac{20}{100} = .20$
- 2) $\frac{3}{5} = \frac{6}{10} = .6 = \frac{60}{100} = .60$
- 3) $\frac{1}{4} = \frac{25}{100} = .25$
- 4) $\frac{5}{5} = \frac{100}{100} = 100\%$
- 5) $\frac{2}{5} = \frac{40}{100} = 40\%$
- 6) $\frac{3}{4} = \frac{75}{100} = .75 = 75\%$
- 7) $\frac{1}{2} = \frac{50}{100} = .50 = 50\%$

29D

- 1) $\frac{1}{5} = \frac{20}{100} = 20\%$
 2) $\frac{3}{5} = \frac{60}{100} = 60\%$
 3) $\frac{1}{4} = \frac{25}{100} = .25 = 25\%$
 4) $\frac{4}{5} = \frac{80}{100} = .80 = 80\%$
 5) $\frac{1}{2}T + 5 = 8$
 $\frac{1}{2}T = 3$
 $\frac{2}{1} \cdot \frac{1}{2}T = \frac{3}{1} \cdot \frac{2}{1}$
 $T = \frac{6}{1} = 6$
 6) $\frac{1}{2}(6) + 5 = 8$
 $3 + 5 = 8$
 $8 = 8$
 7) $\frac{1}{2} \times \frac{1}{7} \times \frac{1}{3} = \frac{1}{42}$
 8) $\frac{1}{2} \times \frac{1}{3} \times \frac{1}{4} \times \frac{1}{5} = \frac{1}{120}$
 $\frac{1}{120} \times \frac{47}{1} \times \frac{1}{1} = \frac{47}{120}$
 9) 6
 10) 13
 11) 9
 12) 31
 13) XX
 14) VIII
 15) XVI
 16) XXXIV
 17) $16 + 18 + 22 = 56$
 $56 \div 3 = 18 \frac{2}{3}$ yrs.
 18) $A = \frac{22}{7}(70^2) = \frac{22}{7} \cdot \frac{4900}{1} =$
 $\frac{15400}{1} = 15,400$ sq. ft.
 $C = \frac{2}{1} \cdot \frac{22}{1} \cdot \frac{70^{10}}{1} = \frac{440}{1} = 440$ ft.

29E

- 1) $\frac{2}{5} = \frac{40}{100} = 40\%$
 2) $\frac{5}{5} = \frac{100}{100} = 100\%$
 3) $\frac{3}{4} = \frac{75}{100} = .75 = 75\%$
 4) $\frac{1}{2} = \frac{50}{100} = .50 = 50\%$
 5) $\frac{4}{5}U - 11 = 33$
 $\frac{4}{5}U = 44$
 $\frac{5}{4} \cdot \frac{4}{5}U = \frac{44}{1} \cdot \frac{5}{4}$
 $U = \frac{220}{4} = 55$
 6) $\frac{4}{5}(55) - 11 = 33$
 $\frac{4}{5}(\frac{55}{1}) - 11 = 33$
 $\frac{220}{5} - 11 = 33$
 $44 - 11 = 33; \quad 33 = 33$
 7) $\frac{9}{12} + \frac{8}{12} + \frac{1}{12} = \frac{18}{12} = \frac{3}{2} = 1 \frac{1}{2}$
 8) $\frac{5}{15} + \frac{6}{15} + \frac{1}{15} = \frac{12}{15} = \frac{4}{5}$
 9) 2
 10) 17
 11) 27
 12) 19
 13) VII
 14) XVIII
 15) XXI
 16) XXXV
 17) $1/2(24)(13/2) = 78$ sq. in.
 18) $3/8 \div 5/8 = 3/5$ mi.
 19) $3 \frac{2}{6} + 6 \frac{3}{6} + 5 \frac{1}{6} = 14 \frac{6}{6} = 15$
 $15 \div 3 = 5$ in.
 20) $\frac{2}{1} \cdot \frac{22}{1} \cdot \frac{7}{1} = \frac{44}{1} = 44$ ft.

29F

- 1) $\frac{3}{5} = \frac{60}{100} = 60\%$
 2) $\frac{1}{5} = \frac{20}{100} = 20\%$
 3) $\frac{4}{5} = \frac{80}{100} = .80 = 80\%$
 4) $\frac{1}{4} = \frac{25}{100} = .25 = 25\%$
 5) $7X - 9 = 19$
 $7X = 28$
 $\frac{1}{7} \cdot 7X = 28 \cdot \frac{1}{7}$
 $X = 4$
 6) $7(4) - 9 = 19$
 $28 - 9 = 19$
 $19 = 19$
 7) $16 \frac{5}{9} - 8 \frac{1}{9} = 8 \frac{4}{9}$
 8) $6 \frac{5}{5} - 3 \frac{4}{5} = 3 \frac{1}{5}$
 9) $4 \frac{15}{40} + 2 \frac{24}{40} = 6 \frac{39}{40}$
 10) 3
 11) 11
 12) 25
 13) 39
 14) V
 15) XII
 16) XXXVIII
 17) XIV
 18) $45 + 34 + 40 = 119$
 $119 \div 3 = 39 \frac{2}{3}$ mi.
 19) $\frac{1}{2} \times \frac{1}{4} \times \frac{4}{5} = \frac{1}{10}$
 20) $\frac{22}{7}(28^2) = \frac{22}{7} \cdot \frac{784}{1} =$
 $\frac{2464}{1} = 2,464$ sq. ft.
 $2,464 > 200$ so no

30A

- 1) done
 2) done
 3) $\frac{3}{5}X - \frac{1}{2} = 19 \frac{1}{2}$
 $\frac{3}{5}X = 19 \frac{1}{2} + \frac{1}{2}$
 $\frac{3}{5}X = 20$
 $\frac{5}{3} \cdot \frac{3}{5}X = \frac{20}{1} \cdot \frac{5}{3}$
 $X = \frac{100}{3} = 33 \frac{1}{3}$
 4) $\frac{3}{5}(\frac{100}{3}) - \frac{1}{2} = 19 \frac{1}{2}$
 $\frac{300}{15} - \frac{1}{2} = 19 \frac{1}{2}$
 $20 - \frac{1}{2} = 19 \frac{1}{2}$
 $19 \frac{1}{2} = 19 \frac{1}{2}$
 5) $\frac{1}{6}L + \frac{1}{3} = \frac{2}{3}$
 $\frac{1}{6}L = \frac{1}{3}$
 $\frac{6}{1} \cdot \frac{1}{6}L = \frac{1}{3} \cdot \frac{6}{1}$
 $L = \frac{6}{3} = 2$
 6) $\frac{1}{6}(2) + \frac{1}{3} = \frac{2}{3}$
 $\frac{1}{6}(\frac{2}{1}) + \frac{1}{3} = \frac{2}{3}$
 $\frac{2}{6} + \frac{1}{3} = \frac{2}{3}$
 $\frac{1}{3} + \frac{1}{3} = \frac{2}{3}$
 $\frac{2}{3} = \frac{2}{3}$
 7) $\frac{1}{2}Y + \frac{3}{4} = 7 \frac{3}{4}$
 $\frac{1}{2}Y = 7$
 $\frac{2}{1} \cdot \frac{1}{2}Y = \frac{7}{1} \cdot \frac{2}{1}$
 $Y = \frac{14}{1} = 14$
 8) $\frac{1}{2}(14) + \frac{3}{4} = 7 \frac{3}{4}$
 $7 + \frac{3}{4} = 7 \frac{3}{4}$
 $7 \frac{3}{4} = 7 \frac{3}{4}$
 9) $\frac{4}{5}M - \frac{1}{10} = \frac{6}{10}$
 $\frac{4}{5}M = \frac{7}{10}$
 $\frac{5}{4} \cdot \frac{4}{5}M = \frac{7}{10} \cdot \frac{5}{4}$
 $M = \frac{7}{8}$
 10) $\frac{4}{5}(\frac{7}{8}) - \frac{1}{10} = \frac{3}{5}$
 $\frac{28}{40} - \frac{1}{10} = \frac{3}{5}$
 $\frac{7}{10} - \frac{1}{10} = \frac{3}{5}$
 $\frac{6}{10} = \frac{3}{5}$
 11) $\frac{1}{4}Z - \frac{2}{3} = 3 \frac{1}{3}$
 $\frac{1}{4}Z = 3 \frac{3}{3} = 4$
 $\frac{4}{1} \cdot \frac{1}{4}Z = 4 \cdot \frac{4}{1}$
 $Z = 16$
 12) $\frac{1}{4}(16) - \frac{2}{3} = 3 \frac{1}{3}$
 $4 - \frac{2}{3} = 3 \frac{1}{3}$
 $3 \frac{1}{3} = 3 \frac{1}{3}$