

9F

- 1) $\frac{4}{20}$
- 2) $\frac{2}{18}$
- 3) $\frac{4}{18}$
- 4) $\frac{10}{15} + \frac{3}{15} = \frac{13}{15}$
- 5) $\frac{16}{40} - \frac{15}{40} = \frac{1}{40}$
- 6) $\frac{5}{20} + \frac{12}{20} = \frac{17}{20}$
 $\frac{17}{20} + \frac{2}{3} = \frac{51}{60} + \frac{40}{60} = \frac{91}{60}$ or $1\frac{31}{60}$
- 7) $\frac{40}{48} > \frac{24}{48}$
- 8) $\frac{27}{45} > \frac{20}{45}$
- 9) $\frac{24}{32} = \frac{24}{32}$
- 10) $(600) \times (60) = (36,000)$
 $558 \times 62 = 34,596$
- 11) $(400) \times (80) = (32,000)$
 $407 \times 83 = 33,781$
- 12) $(300) \times (10) = (3,000)$
 $349 \times 12 = 4,188$
- 13) $18\frac{2}{7}$
- 14) 157
- 15) $59\frac{3}{5}$
- 16) $\frac{3}{1} \times \frac{1}{4} = \frac{3}{4}$ ft.
- 17) $\frac{4}{5} - \frac{1}{3} = \frac{12}{15} - \frac{5}{15} = \frac{7}{15}$ mile
- 18) $\frac{1}{3} \times \frac{1}{2} = \frac{1}{6}$; $1/6$ of $12 = 2$
- 19) $13 + 19 + 26 = 58$ "
- 20) $1/2$ of $30 = 15$

10A

- 1) done
- 2) done
- 3) $\frac{15}{24} \div \frac{16}{24} = \frac{15 \div 16}{1} = \frac{15}{16}$
- 4) $\frac{12}{16} \div \frac{8}{16} = \frac{12 \div 8}{1} = \frac{12}{8}$ or $1\frac{4}{8}$
- 5) $\frac{4}{8} \div \frac{2}{8} = \frac{4 \div 2}{1} = 2$
- 6) $\frac{1}{2} \div \frac{1}{8} = \frac{8}{16} \div \frac{2}{16} = \frac{8 \div 2}{1} = 4$
- 7) $\frac{2}{3} \div \frac{1}{6} = \frac{12}{18} \div \frac{3}{18} = \frac{12 \div 3}{1} = 4$
- 8) $\frac{6}{8} \div \frac{1}{4} = \frac{24}{32} \div \frac{8}{32} = \frac{24 \div 8}{1} = 3$

10B

- 1) $\frac{12}{20} \div \frac{5}{20} = \frac{12 \div 5}{1} = \frac{12}{5}$ or $2\frac{2}{5}$
- 2) $\frac{18}{24} \div \frac{4}{24} = \frac{18 \div 4}{1} = \frac{18}{4}$ or $4\frac{2}{4}$
- 3) $\frac{3}{12} \div \frac{4}{12} = \frac{3 \div 4}{1} = \frac{3}{4}$
- 4) $\frac{16}{24} \div \frac{15}{24} = \frac{16 \div 15}{1} = \frac{16}{15}$ or $1\frac{1}{15}$
- 5) $\frac{5}{20} \div \frac{16}{20} = \frac{5 \div 16}{1} = \frac{5}{16}$
- 6) $\frac{3}{4} \div \frac{1}{8} = \frac{24}{32} \div \frac{4}{32} = \frac{24 \div 4}{1} = 6$
- 7) $\frac{9}{10} \div \frac{1}{10} = \frac{9 \div 1}{1} = 9$
- 8) $\frac{5}{16} \div \frac{1}{16} = \frac{5 \div 1}{1} = 5$

10C

- 1) $\frac{6}{15} + \frac{10}{15} = \frac{6+10}{1} = \frac{16}{15}$
- 2) $\frac{3}{6} + \frac{2}{6} = \frac{3+2}{1} = \frac{5}{2}$ or $1\frac{1}{2}$
- 3) $\frac{10}{15} \div \frac{12}{15} = \frac{10 \div 12}{1} = \frac{10}{12}$
- 4) $\frac{8}{16} \div \frac{8}{16} = \frac{8 \div 8}{1} = 1$
- 5) $\frac{5}{15} \div \frac{6}{15} = \frac{5 \div 6}{1} = \frac{5}{6}$
- 6) $\frac{1}{3} \div \frac{1}{9} = \frac{9}{27} \div \frac{3}{27} = \frac{9 \div 3}{1} = 3$
- 7) $\frac{4}{5} \div \frac{1}{10} = \frac{40}{50} \div \frac{5}{50} = \frac{40 \div 5}{1} = 8$
- 8) $\frac{1}{3} \div \frac{1}{6} = \frac{6}{18} \div \frac{3}{18} = \frac{6 \div 3}{1} = 2$

Don't forget that the last step in these problems is optional for now.

10D

- 1) $\frac{10}{12} + \frac{6}{12} = \frac{10+6}{1} = \frac{16}{6}$ or $1\frac{4}{6}$
- 2) $\frac{4}{5} + \frac{2}{5} = \frac{4+2}{1} = 2$
- 3) $\frac{12}{15} + \frac{5}{15} = \frac{12+5}{1} = \frac{17}{5}$ or $2\frac{2}{5}$
- 4) $\frac{3}{4} \times \frac{1}{8} = \frac{3}{32}$
- 5) $\frac{2}{3} \times \frac{1}{6} = \frac{2}{18}$
- 6) $\frac{6}{8} \times \frac{1}{4} = \frac{6}{32}$
- 7) $\frac{12}{18} - \frac{3}{18} = \frac{9}{18}$
- 8) $\frac{5}{10} - \frac{4}{10} = \frac{1}{10}$
- 9) $\frac{3}{6} + \frac{4}{6} = \frac{7}{6}$
 $\frac{7}{6} + \frac{4}{5} = \frac{35}{30} + \frac{24}{30} = \frac{59}{30}$ or $1\frac{29}{30}$
- 10) 3,572
- 11) 3,555
- 12) 36,159
- 13) done
- 14) $(500) \div (50) = (10)$
- 15) $(600) \div (30) = (20)$
- 16) $\frac{1}{2} \times \frac{5}{8} = \frac{5}{16}$
- 17) $\frac{4}{6} \div \frac{1}{3} = \frac{12}{18} \div \frac{6}{18} = \frac{12 \div 6}{1} = 2$
- 18) $\frac{1}{2} + \frac{1}{6} = \frac{6}{12} + \frac{2}{12} = \frac{8}{12}$

10E

- 1) $\frac{2}{3} + \frac{1}{3} = \frac{2+1}{1} = 2$
- 2) $\frac{15}{20} \div \frac{8}{20} = \frac{15 \div 8}{1} = \frac{15}{8}$ or $1\frac{7}{8}$
- 3) $\frac{8}{12} \div \frac{6}{12} = \frac{8 \div 6}{1} = \frac{8}{6}$ or $1\frac{2}{6}$
- 4) $\frac{4}{5} \times \frac{2}{5} = \frac{8}{25}$
- 5) $\frac{6}{8} \times \frac{1}{2} = \frac{6}{16}$
- 6) $\frac{1}{3} \times \frac{2}{5} = \frac{2}{15}$
- 7) $\frac{9}{12} - \frac{8}{12} = \frac{1}{12}$
- 8) $\frac{8}{80} + \frac{70}{80} = \frac{78}{80}$
- 9) $\frac{9}{18} + \frac{4}{18} = \frac{13}{18}$
 $\frac{13}{18} + \frac{3}{4} = \frac{52}{72} + \frac{54}{72} = \frac{106}{72}$ or $1\frac{34}{72}$
- 10) 2,044
- 11) 59,688
- 12) 8,692
- 13) done
- 14) $(700) \div (70) = (10)$
- 15) $(900) \div (20) \approx (40 \text{ or } 45)$
- 16) $50 \div 2 = 25$; $25 \times 1 = \$25$
- 17) $\frac{6}{42} + \frac{7}{42} = \frac{13}{42}$
- 18) $\frac{6}{15} - \frac{5}{15} = \frac{1}{15}$
- 19) $\frac{24}{32} \div \frac{4}{32} = \frac{24 \div 4}{1} = 6$
- 20) $\frac{1}{2} \times \frac{3}{4} = \frac{3}{8}$ cup

10F

- 1) $\frac{5}{8} \div \frac{6}{8} = \frac{5 \div 6}{1} = \frac{5}{6}$
- 2) $\frac{8}{12} \div \frac{3}{12} = \frac{8 \div 3}{1} = \frac{8}{3}$ or $2\frac{2}{3}$
- 3) $\frac{12}{24} \div \frac{4}{24} = \frac{12 \div 4}{1} = 3$
- 4) $\frac{4}{5} \times \frac{1}{10} = \frac{4}{50}$
- 5) $\frac{5}{6} \times \frac{1}{12} = \frac{5}{72}$
- 6) $\frac{1}{2} \times \frac{1}{4} = \frac{1}{8}$
- 7) $\frac{5}{20} + \frac{8}{20} = \frac{13}{20}$
- 8) $\frac{40}{50} - \frac{35}{50} = \frac{5}{50}$
- 9) $\frac{12}{22} + \frac{11}{22} = \frac{23}{22}$
 $\frac{23}{22} + \frac{2}{3} = \frac{69}{66} + \frac{44}{66} = \frac{113}{66}$ or $1\frac{47}{66}$
- 10) 560
- 11) 12,376
- 12) 15,990
- 13) $(600) \div (40) \approx (15)$
- 14) $(400) \div (80) = (5)$
- 15) $(400) \div (10) = (40)$
- 16) $\frac{1}{5} \times \frac{2}{3} = \frac{2}{15}$
- 17) $\frac{1}{4} \div \frac{1}{16} = \frac{16}{64} \div \frac{4}{64} = \frac{16 \div 4}{1} = 4$
- 18) $\frac{3}{7} + \frac{1}{4} = \frac{12}{28} + \frac{7}{28} = \frac{19}{28}$
- 19) $256 \times 35 = 8,960$
- 20) $\frac{5}{5} - \frac{1}{5} = \frac{4}{5}$; $\frac{5}{6} \times \frac{4}{5} = \frac{20}{30}$

11A

- 1) done
- 2) 1×10
 2×5
 1, 2, 5, 10
- 3) 1×18
 2×9
 3×6
 1, 2, 3, 6, 9, 18
- 4) yes
- 5) no
- 6) no
- 7) no
- 8) yes
- 9) yes
- 10) yes
- 11) yes
- 12) no
- 13) yes
- 14) no
- 15) yes
- 16) yes
- 17) yes
- 18) no
- 19) done
- 20) $1, 3, 5, 15$
 $1, 2, 5, 10$
 GCF = 5
- 21) $1, 2, 3, 6$
 $1, 2, 3, 6, 9, 18$
 GCF = 6

11B

- 1) 1×9
 3×3
 1, 3, 9
- 2) 1×4
 2×2
 1, 2, 4
- 3) 1×14
 2×7
 1, 2, 7, 14
- 4) yes
- 5) yes
- 6) no
- 7) yes
- 8) no
- 9) no
- 10) done
- 11) 1×28
 2×14
 4×7
 1, 2, 4, 7, 14, 28
- 12) $1, 3, 9$
 $1, 3, 5, 15$
 GCF = 3
- 13) $1, 2, 5, 10$
 $1, 5, 25$
 GCF = 5
- 14) $1, 2, 3, 6$
 $1, 2, 3, 4, 6, 12$
 GCF = 6

11C

- 1) 1×8
 2×4
 1, 2, 4, 8
- 2) 1×20
 2×10
 4×5
 1, 2, 4, 5, 10, 20
- 3) 1×22
 2×11
 1, 2, 11, 22
- 4) no
- 5) no
- 6) yes
- 7) yes
- 8) no
- 9) no
- 10) 1×42
 2×21
 3×14
 6×7
 1, 2, 3, 6, 7, 14, 21, 42
- 11) 1×34
 2×17
 1, 2, 17, 34
- 12) 1×50
 2×25
 5×10
 1, 2, 5, 10, 25, 50
- 13) $1, 2, 4, 8$
 $1, 2, 3, 4, 6, 8, 12, 16, 24, 48$
 GCF = 8
- 14) $1, 3, 5, 15$
 $1, 5, 7, 35$
 GCF = 5
- 15) $1, 3, 9$
 $1, 2, 3, 6, 9, 18$
 GCF = 9

Unit Test I

- 1) $12 + 3 = 4; 4 \times 2 = 8$
- 2) $10 + 5 = 2; 2 \times 3 = 6$
- 3) $24 + 4 = 6; 6 \times 3 = 18$
- 4) $15 + 3 = 5; 5 \times 1 = 5$
- 5) $25 \div 5 = 5; 5 \times 4 = 20$
- 6) $14 \div 7 = 2; 2 \times 5 = 10$
- 7) $\frac{2}{6} = \frac{4}{12} = \frac{6}{18} = \frac{8}{24}$
- 8) $\frac{5}{8} = \frac{10}{16} = \frac{15}{24} = \frac{20}{32}$
- 9) $\frac{2}{3}$
- 10) $\frac{6}{24} + \frac{12}{24} = \frac{18}{24}$
- 11) $\frac{6}{30} + \frac{25}{30} = \frac{31}{30} = 1\frac{1}{30}$
(final step optional)
- 12) $\frac{10}{15} - \frac{3}{15} = \frac{7}{15}$
- 13) $\frac{4}{10}$
- 14) $\frac{32}{56} - \frac{21}{56} = \frac{11}{56}$
- 15) $\frac{21}{35} < \frac{25}{35}$
- 16) $\frac{24}{48} = \frac{24}{48}$
- 17) $\frac{16}{24} > \frac{12}{24}$
- 18) $\frac{30}{80} + \frac{8}{80} = \frac{38}{80}$
 $\frac{38}{80} + \frac{2}{5} = \frac{190}{400} + \frac{160}{400} = \frac{350}{400}$

- 19) $\frac{6}{8} + \frac{7}{8} + \frac{4}{8} = \frac{17}{8} = 2\frac{1}{8}$
final step optional
- 20) $16 + 17 + 28 = 61'$
- 21) $46 + 23 + 46 + 23 = 138$ yds
- 22) $52 + 52 + 52 + 52 = 208''$
- 23) 90
- 24) 50
- 25) 600
- 26) 500
- 27) $71\frac{3}{5}$
- 28) $67\frac{5}{8}$
- 29) $31\frac{3}{6}$
- 30) 1,206
- 31) 884
- 32) 4,928
- 33) $\frac{2}{5} + \frac{1}{3} = \frac{6}{15} + \frac{5}{15} = \frac{11}{15}$
- 34) $\frac{15}{18} > \frac{12}{18}$ so $\frac{5}{6} > \frac{2}{3}$
Drumore received more.
 $\frac{15}{18} - \frac{12}{18} = \frac{3}{18}$ ft.
- 35) $10 + 11 + 10 + 11 = 42'$
 $\frac{1}{7}$ of $42 = 6'$

Test 9

- 1) $\frac{1}{12}$
- 2) $\frac{6}{20}$
- 3) $\frac{2}{28}$
- 4) $\frac{6}{35}$
- 5) $\frac{3}{30}$
- 6) $\frac{2}{12}$
- 7) $\frac{12}{44} + \frac{11}{44} = \frac{23}{44}$
- 8) $\frac{24}{30} - \frac{5}{30} = \frac{19}{30}$
- 9) $\frac{3}{21} + \frac{14}{21} = \frac{17}{21}$
 $\frac{17}{21} + \frac{1}{2} = \frac{34}{42} + \frac{21}{42} = \frac{55}{42}$ or $1\frac{13}{42}$
- 10) $\frac{16}{24} > \frac{15}{24}$
- 11) $\frac{36}{48} = \frac{36}{48}$
- 12) $\frac{45}{54} > \frac{42}{54}$
- 13) $(600) \times (50) = (30,000)$
 $612 \times 54 = 33,048$
- 14) $(100) \times (40) = (4,000)$
 $124 \times 36 = 4,464$
- 15) $(1000) \times (10) = (10,000)$
 $957 \times 13 = 12,441$
- 16) $\frac{1}{3} + \frac{2}{5} = \frac{5}{15} + \frac{6}{15} = \frac{11}{15}$
- 17) $10 + 12 + 12 = 34$ ft.
- 18) $\frac{3}{8} \times \frac{1}{2} = \frac{3}{16}$
- 19) $\frac{3}{8}$ of 48:
 $48 \div 8 = 6; 6 \times 3 = 18$ had burgers
 $\frac{3}{16}$ of 48:
 $48 \div 16 = 3; 3 \times 3 = 9$ had mustard
- 20) $48 \times \$15 = \720

Test 10

- 1) $\frac{2}{5} + \frac{1}{5} = \frac{2+1}{5} = \frac{3}{5}$
- 2) $\frac{15}{24} + \frac{16}{24} = \frac{15+16}{24} = \frac{31}{24}$
- 3) $\frac{4}{8} + \frac{2}{8} = \frac{4+2}{8} = \frac{6}{8} = \frac{3}{4}$
- 4) $\frac{3}{12} + \frac{4}{12} = \frac{3+4}{12} = \frac{7}{12}$
- 5) $\frac{27}{45} \div \frac{10}{45} = \frac{27 \div 9}{45 \div 9} \div \frac{10 \div 5}{45 \div 5} = \frac{3}{5} \div \frac{2}{9} = \frac{3}{5} \times \frac{9}{2} = \frac{27}{10}$ or $2\frac{7}{10}$
- 6) $\frac{12}{15} \div \frac{10}{15} = \frac{12 \div 3}{15 \div 3} \div \frac{10 \div 5}{15 \div 5} = \frac{4}{5} \div \frac{2}{3} = \frac{4}{5} \times \frac{3}{2} = \frac{12}{5}$ or $2\frac{2}{5}$
- 7) $\frac{3}{4} \times \frac{1}{4} = \frac{3}{16}$
- 8) $\frac{2}{3} \times \frac{1}{5} = \frac{2}{15}$
- 9) $\frac{2}{9} \times \frac{1}{2} = \frac{2}{18} = \frac{1}{9}$
- 10) $\frac{32}{56} + \frac{21}{56} = \frac{53}{56}$
- 11) $\frac{20}{36} - \frac{9}{36} = \frac{11}{36}$
- 12) $\frac{4}{10} + \frac{3}{10} + \frac{5}{10} = \frac{12}{10}$ or $1\frac{2}{5}$
- 13) $(500) \div (40) \approx (10)$
- 14) $(900) \div (30) = (30)$
- 15) $(600) \div (60) = (10)$
- 16) $\frac{1}{2} \div \frac{1}{12} = \frac{12}{24} \div \frac{1}{24} = \frac{12 \div 12}{24 \div 12} \div \frac{1}{24} = 1 \div \frac{1}{24} = 24$
- 17) $\frac{7}{8} \div \frac{1}{8} = \frac{7 \div 1}{8 \div 1} = 7$
- 18) $\frac{3}{10} + \frac{1}{10} = \frac{4}{10} = \frac{2}{5}$
 $\frac{4}{10} + \frac{3}{5} = \frac{20}{50} + \frac{30}{50} = \frac{50}{50} = 1$ mi.
- 19) $\frac{7}{8} - \frac{2}{8} = \frac{5}{8}$ (or $20/32$)
- 20) $365 \times 24 = 8,760$