

9A

- 1) done
- 2) $\frac{9}{20}$
- 3) $\frac{1}{6}$
- 4) $\frac{8}{30}$
- 5) $\frac{2}{12}$
- 6) $\frac{5}{30}$
- 7) $\frac{8}{30}$
- 8) $\frac{1}{18}$
- 9) $\frac{2}{12}$
- 10) $\frac{6}{25}$
- 11) $\frac{6}{18}$
- 12) $\frac{2}{20}$
- 13) $\frac{12}{24}$
- 14) $\frac{2}{10}$
- 15) $\frac{4}{18}$
- 16) $\frac{1}{3} \times \frac{1}{4} = \frac{1}{12}$
- 17) $\frac{1}{2} \times \frac{1}{5} = \frac{1}{10}$
- 18) $\frac{1}{3} \times \frac{1}{5} = \frac{1}{15}$

9B

- 1) $\frac{6}{30}$
- 2) $\frac{2}{6}$
- 3) $\frac{6}{32}$
- 4) $\frac{1}{20}$
- 5) $\frac{2}{18}$
- 6) $\frac{4}{15}$
- 7) $\frac{12}{30}$
- 8) $\frac{5}{12}$
- 9) $\frac{9}{16}$
- 10) $\frac{8}{30}$
- 11) $\frac{1}{14}$
- 12) $\frac{15}{30}$
- 13) $\frac{3}{40}$
- 14) $\frac{1}{8}$
- 15) $\frac{7}{72}$
- 16) $\frac{3}{4} \times \frac{1}{4} = \frac{3}{16}$
- 17) $\frac{2}{3} \times \frac{3}{5} = \frac{6}{15}$
- 18) $\frac{1}{5} \times \frac{1}{5} = \frac{1}{25}$

9C

- 1) $\frac{6}{30}$
- 2) $\frac{4}{27}$
- 3) $\frac{2}{18}$
- 4) $\frac{12}{20}$
- 5) $\frac{3}{28}$
- 6) $\frac{1}{36}$
- 7) $\frac{4}{24}$
- 8) $\frac{9}{20}$
- 9) $\frac{8}{24}$
- 10) $\frac{2}{30}$
- 11) $\frac{5}{36}$
- 12) $\frac{1}{100}$
- 13) $\frac{6}{18}$
- 14) $\frac{3}{10}$
- 15) $\frac{3}{40}$
- 16) $\frac{4}{5} \times \frac{2}{4} = \frac{8}{20}$ mi.
- 17) $\frac{2}{3} \times \frac{1}{3} = \frac{2}{9}$ cups
- 18) $\frac{7}{8} \times \frac{1}{7} = \frac{7}{56}$

9D

- 1) $\frac{2}{25}$
- 2) $\frac{5}{24}$
- 3) $\frac{5}{18}$
- 4) $\frac{3}{21} + \frac{7}{21} = \frac{10}{21}$
- 5) $\frac{14}{21} - \frac{3}{21} = \frac{11}{21}$
- 6) $\frac{5}{10} + \frac{4}{10} + \frac{7}{10} = \frac{16}{10}$ or $1\frac{6}{10}$
- 7) $\frac{28}{42} > \frac{6}{42}$
- 8) $\frac{16}{24} > \frac{15}{24}$
- 9) $\frac{11}{99} < \frac{18}{99}$
- 10) $\frac{2}{7} = \frac{4}{14} = \frac{6}{21} = \frac{8}{28}$
- 11) $\frac{1}{9} = \frac{2}{18} = \frac{3}{27} = \frac{4}{36}$
- 12) done
- 13) $(200) \times (60) = (12,000)$
 $179 \times 57 = 10,203$
- 14) $(900) \times (10) = (9,000)$
 $902 \times 11 = 9,922$
- 15) $\frac{1}{3} \times \frac{2}{3} = \frac{2}{9}$ cups
- 16) $365 \times 25 = 9,125$
- 17) $\frac{3}{6} + \frac{2}{6} = \frac{5}{6}$
 $\frac{5}{6} + \frac{1}{4} = \frac{20}{24} + \frac{6}{24} = \frac{26}{24}$
or $1\frac{2}{24}$ cups

9E

- 1) $\frac{2}{6}$
- 2) $\frac{14}{40}$
- 3) $\frac{3}{15}$
- 4) $\frac{27}{36} + \frac{4}{36} = \frac{31}{36}$
- 5) $\frac{10}{15} - \frac{6}{15} = \frac{4}{15}$
- 6) $\frac{3}{8} + \frac{5}{8} = \frac{8}{8} = 1$
 $1 + \frac{2}{8} = 1\frac{2}{8}$
- 7) $\frac{9}{27} = \frac{9}{27}$
- 8) $\frac{16}{40} > \frac{15}{40}$
- 9) $\frac{50}{70} > \frac{49}{70}$
- 10) $(100) \times (50) = (5,000)$
 $125 \times 51 = 6,375$
- 11) $(300) \times (40) = (12,000)$
 $254 \times 35 = 8,890$
- 12) $(600) \times (30) = (18,000)$
 $563 \times 26 = 14,638$
- 13) $17 \frac{5}{6}$
- 14) $49 \frac{3}{8}$
- 15) $229 \frac{1}{2}$
- 16) $\frac{1}{2} \times \frac{4}{5} = \frac{4}{10}$
- 17) $\frac{5}{30} + \frac{6}{30} = \frac{11}{30}$
 $\frac{11}{30} + \frac{1}{4} = \frac{44}{120} + \frac{30}{120} = \frac{74}{120}$
- 18) $250 \times 51 = 12,750''$
- 19) $12 + 17 + 28 = 57''$
- 20) $225 + 5 = 47; 47 \times 3 = 141$

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

10B

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

10C

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

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

10D

- 1) $\frac{10}{12} + \frac{6}{12} = \frac{10+6}{1} = \frac{10}{6}$ or $1\frac{4}{6}$
- 2) $\frac{4}{5} + \frac{2}{5} = \frac{4+2}{1} = 2$
- 3) $\frac{12}{15} + \frac{5}{15} = \frac{12+5}{1} = \frac{12}{5}$ 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) $\frac{4}{6} + \frac{1}{3} = \frac{12}{18} + \frac{6}{18} = \frac{12+6}{1} = 2$
- 18) $\frac{1}{2} + \frac{1}{6} = \frac{6}{12} + \frac{2}{12} = \frac{8}{12}$

Unit Test I

- 1) $12 \div 3 = 4; 4 \times 2 = 8$
- 2) $10 \div 5 = 2; 2 \times 3 = 6$
- 3) $24 \div 4 = 6; 6 \times 3 = 18$
- 4) $15 \div 3 = 5; 5 \times 1 = 5$
- 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.
 $\frac{15}{18} - \frac{12}{18} = \frac{3}{18} = \frac{1}{6}$ 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) $\frac{6}{36}$
- 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

Test 10

- 1) $\frac{8}{8} + \frac{1}{8} = \frac{9}{8} = 1\frac{1}{8}$
- 2) $\frac{16}{24} + \frac{16}{24} = \frac{16+16}{24} = \frac{32}{24}$
- 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) $\frac{27}{45} + \frac{10}{45} = \frac{27+10}{45} = \frac{37}{45}$ or $2\frac{7}{10}$
- 6) $\frac{12}{15} + \frac{10}{15} = \frac{12+10}{15} = \frac{22}{15}$ or $1\frac{7}{15}$
- 7) $\frac{3}{4} \times \frac{1}{4} = \frac{3}{16}$
- 8) $\frac{2}{3} \times \frac{1}{5} = \frac{2}{15}$
- 9) $\frac{2}{9} \times \frac{1}{2} = \frac{2}{18}$
- 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 $1\frac{2}{10}$
- 13) $(500) \div (40) \approx (10)$
- 14) $(900) \div (30) = (30)$
- 15) $(600) \div (60) = (10)$
- 16) $\frac{1}{2} \div \frac{1}{12} = \frac{12}{24} \div \frac{2}{24} = \frac{12 \div 2}{24 \div 2} = 6$
- 17) $\frac{7}{8} + \frac{1}{8} = \frac{7+1}{8} = 1$
- 18) $\frac{3}{10} + \frac{1}{10} = \frac{4}{10}$
 $\frac{4}{10} + \frac{3}{5} = \frac{20}{50} + \frac{30}{50} = \frac{50}{50} = 1$ mi.