

9A

1) done

2) done

3) done

4) done

These problems may be solved using either of the methods shown in the student text.

5) $X - 9 = 63$

$X - 9 + 9 = 63 + 9$

$X = 72$

6) $(72) - 9 = 63$

$63 = 63$

7) $X + 5 = 35$

$X + 5 - 5 = 35 - 5$

$X = 30$

8) $(30) + 5 = 35$

$35 = 35$

9) $6X = 36 + 5X$

$6X - 5X = 36 + 5X - 5X$

$X = 36$

10) $6(36) = 36 + 5(36)$

$216 = 36 + 180$

$216 = 216$

11) $5X - 5 = 4X + 5$

$5X - 5 + 5 = 4X + 5 + 5$

$5X = 4X + 10$

$5X - 4X = 4X - 4X + 10$

$X = 10$

12) $5(10) - 5 = 4(10) + 5$

$50 - 5 = 40 + 5$

$45 = 45$

13) $-X + 4 = -2X - 6$

$-X + 2X + 4 = -2X + 2X - 6$

$X + 4 = -6$

$X + 4 - 4 = -6 - 4$

$X = -10$

14) $-(-10) + 4 = -2(-10) - 6$

$10 + 4 = 20 - 6$

$14 = 14$

15) done

16) done

17) $R + 6 = 9$

$R + 6 - 6 = 9 - 6$

$R = 3$

18) $2P - 10 = P + 20$

$2P - 10 + 10 = P + 20 + 10$

$2P = P + 30$

$2P - P = P + 30 - P$

$P = 30$

9B

1) $X + 18 = 24$

$X + 18 - 18 = 24 - 18$

$X = 6$

2) $(6) + 18 = 24$

$24 = 24$

3) $Y - 16 = 36$

$Y - 16 + 16 = 36 + 16$

$Y = 52$

4) $(52) - 16 = 36$

$36 = 36$

5) $X + 4 = 9$

$X + 4 - 4 = 9 - 4$

$X = 5$

6) $(5) + 4 = 9$

$9 = 9$

7) $X - 10 = -10$

$X - 10 + 10 = -10 + 10$

$X = 0$

8) $(0) - 10 = -10$

$-10 = -10$

9) $3B + 4 = 2B - 4$

$3B + 4 - 4 = 2B - 4 - 4$

$3B = 2B - 8$

$3B - 2B = 2B - 2B - 8$

$B = -8$

10) $3(-8) + 4 = 2(-8) - 4$

$-24 + 4 = -16 - 4$

$-20 = -20$

11) $-X + 11 = -2X + 16$

$-X + 11 - 11 = -2X + 16 - 11$

$-X = -2X + 5$

$-X + 2X = -2X + 5 + 2X$

$X = 5$

12) $-(5) + 11 = -2(5) + 16$

$6 = -10 + 16$

$6 = 6$

13) $18 = 6 + J$

$18 - 6 = 6 + J - 6$

$12 = J$

14) $5N + 9 = 4N + 12$

$5N + 9 - 9 = 4N + 12 - 9$

$5N = 4N + 3$

$5N - 4N = 4N + 3 - 4N$

$N = 3$

15) $D + 200 = 500$

$D + 200 - 200 = 500 - 200$

$D = \$300$

16) $2D = 12 + D$

$2D - D = 12 + D - D$

$D = 12$

17) $X + 8 = 15$

$X + 8 - 8 = 15 - 8$

$X = 7$

18) $2d = d + 30$

$2d - d = d + 30 - d$

$d = 30$

9C

- 1) $B - 24 = 52$
 $B - 24 + 24 = 52 + 24$
 $B = 76$
- 2) $(76) - 24 = 52$
 $52 = 52$
- 3) $X - 7 = -3$
 $X - 7 + 7 = -3 + 7$
 $X = 4$
- 4) $(4) - 7 = -3$
 $-3 = -3$
- 5) $A + 52 = 100$
 $A + 52 - 52 = 100 - 52$
 $A = 48$
- 6) $(48) + 52 = 100$
 $100 = 100$
- 7) $6Y - 2 = 5Y - 2$
 $6Y - 2 + 2 = 5Y - 2 + 2$
 $6Y = 5Y$
 $6Y - 5Y = 5Y - 5Y$
 $Y = 0$
- 8) $6(0) - 2 = 5(0) - 2$
 $0 - 2 = 0 - 2$
 $-2 = -2$
- 9) $-X - 7 = -2X - 5$
 $-X - 7 + 7 = -2X - 5 + 7$
 $-X = -2X + 2$
 $-X + 2X = -2X + 2 + 2X$
 $X = 2$

- 10) $-(2) - 7 = -2(2) - 5$
 $-9 = -4 - 5$
 $-9 = -9$
- 11) $23D + 13 = 22D + 25$
 $23D - 22D = 25 - 13$
 $D = 12$
- 12) $23(12) + 13 = 22(12) + 25$
 $276 + 13 = 264 + 25$
 $289 = 289$
- 13) $F + 20 = 52$
 $F + 20 - 20 = 52 - 20$
 $F = 32$
- 14) $7N - 8 = 6N - 5$
 $7N - 8 + 8 = 6N - 5 + 8$
 $7N = 6N + 3$
 $7N - 6N = 6N + 3 - 6N$
 $N = 3$
- 15) $X + 6 = 10$
 $X + 6 - 6 = 10 - 6$
 $X = 4$
- 16) $2R - 1 = R + 3$
 $2R - 1 + 1 = R + 3 + 1$
 $2R = R + 4$
 $2R - R = R - R + 4$
 $R = 4$
- 17) $T + 3 = 8$
 $T + 3 - 3 = 8 - 3$
 $T = 5$
- 18) $3V + 1 = 2V + 6$
 $3V + 1 - 1 = 2V + 6 - 1$
 $3V = 2V + 5$
 $3V - 2V = 2V - 2V + 5$
 $V = 5$

9D

- 1) $X + 36 = 45$
 $X + 36 - 36 = 45 - 36$
 $X = 9$
- 2) $(9) + 36 = 45$
 $45 = 45$
- 3) $3B - 6 = 2B + 7$
 $3B - 6 + 6 = 2B + 7 + 6$
 $3B = 2B + 13$
 $3B - 2B = 2B - 2B + 13$
 $B = 13$
- 4) $3(13) - 6 = 2(13) + 7$
 $39 - 6 = 26 + 7$
 $33 = 33$
- 5) ± 7
- 6) $\pm A$
- 7) $-6 \times -6 = 36$
- 8) done
- 9) $\frac{3}{4} + \frac{5}{9} = \frac{27}{36} + \frac{20}{36} = \frac{47}{36}$
- 10) $\frac{1}{3} + \frac{7}{8} = \frac{8}{24} + \frac{21}{24} = \frac{29}{24}$
- 11) $\frac{3}{4} - \frac{1}{5} = \frac{15}{20} - \frac{4}{20} = \frac{11}{20}$
- 12) done
- 13) $\frac{7}{1} \times \frac{1}{7} = \frac{7}{7} = 1$
- 14) $\frac{9}{8} \times \frac{8}{9} = \frac{72}{72} = 1$
- 15) $\frac{1}{2} \times \frac{2}{1} = \frac{2}{2} = 1$
- 16) 4,000.312
- 17) $2 \times 10^0 + 3 \times \frac{1}{10^3}$
- 18) $\frac{1}{3} + \frac{1}{6} = \frac{6}{18} + \frac{3}{18} = \frac{6+3}{18} = \frac{9}{18} = \frac{1}{2}$
- 19) $B + 100 = 250$
 $B + 100 - 100 = 250 - 100$
 $B = 150$
- 20) $\frac{15}{18} > \frac{12}{18}$; Chris ate more

9E

- 1) $7X + 10 = 6X + 4$
 $7X + 10 - 10 = 6X + 4 - 10$
 $7X = 6X - 6$
 $7X - 6X = 6X - 6X - 6$
 $X = -6$
- 2) $7(-6) + 10 = 6(-6) + 4$
 $-42 + 10 = -36 + 4$
 $-32 = -32$
- 3) $-F - 6 = -2F + 1$
 $-F - 6 + 6 = -2F + 1 + 6$
 $-F = -2F + 7$
 $-F + 2F = -2F + 2F + 7$
 $F = 7$
- 4) $-(7) - 6 = -2(7) + 1$
 $-13 = -14 + 1$
 $-13 = -13$
- 5) ± 12
- 6) $\pm X$
- 7) $-(2 \times 2 \times 2 \times 2) = -16$
- 8) $\pm \frac{2}{9}$
- 9) $\frac{1}{5} + \frac{3}{4} = \frac{4}{20} + \frac{15}{20} = \frac{19}{20}$
- 10) $\frac{3}{5} - \frac{1}{3} = \frac{9}{15} - \frac{5}{15} = \frac{4}{15}$
- 11) $\frac{7}{8} - \frac{1}{6} = \frac{42}{48} - \frac{8}{48} = \frac{34}{48} = \frac{17}{24}$
- 12) $\frac{3}{4} \div \frac{5}{8} = \frac{24}{32} \div \frac{20}{32} =$
 $\frac{24 \div 20}{1} = \frac{24}{20} = \frac{6}{5}$

- 13) $\frac{2}{3} \div \frac{5}{7} = \frac{14}{21} \div \frac{15}{21} =$
 $\frac{14 \div 15}{1} = \frac{14}{15}$
- 14) $\frac{5}{9} \div \frac{2}{3} = \frac{15}{27} \div \frac{18}{27} =$
 $\frac{15 \div 18}{1} = \frac{15}{18} = \frac{5}{6}$
- 15) $\frac{1}{3} \times \frac{3}{1} = \frac{3}{3} = 1$
- 16) $\frac{9}{1} \times \frac{1}{9} = \frac{9}{9} = 1$
- 17) $\frac{4}{5} \times \frac{5}{4} = \frac{20}{20} = 1$
- 18) $\frac{9}{10} \div \frac{1}{10} = \frac{90}{100} \div \frac{10}{100} =$
 $\frac{90 \div 10}{1} = 9$
- 19) $6X + 8 = 5X - 5$
 $6X + 8 - 8 = 5X - 5 - 8$
 $6X = 5X - 13$
 $6X - 5X = 5X - 5X - 13$
 $X = -13$
- 20) $24 \div 6 = 4; 4 \times 1 = 4 \text{ hrs.}$

9F

- 1) $13R + 1 = 12R + 7$
 $13R + 1 - 1 = 12R + 7 - 1$
 $13R = 12R + 6$
 $13R - 12R = 12R - 12R + 6$
 $R = 6$
- 2) $13(6) + 1 = 12(6) + 7$
 $78 + 1 = 72 + 7$
 $79 = 79$
- 3) $-6X - 3 = -7X + 5$
 $-6X + 7X = 5 + 3$
 $X = 8$
- 4) $-6(8) - 3 = -7(8) + 5$
 $-48 - 3 = -56 + 5$
 $-51 = -51$
- 5) ± 11
- 6) $\pm B$
- 7) -36
- 8) $\frac{4}{25}$
- 9) $\frac{5}{6} + \frac{7}{10} = \frac{50}{60} + \frac{42}{60} = \frac{92}{60} = \frac{23}{15}$
- 10) $\frac{8}{11} + \frac{3}{4} = \frac{32}{44} + \frac{33}{44} = \frac{65}{44}$
- 11) $\frac{5}{8} - \frac{1}{3} = \frac{15}{24} - \frac{8}{24} = \frac{7}{24}$
- 12) $\frac{1}{2} \div \frac{1}{3} = \frac{3}{6} \div \frac{2}{6} = \frac{3 \div 2}{1} = \frac{3}{2}$
- 13) $\frac{1}{3} \div \frac{5}{18} = \frac{18}{54} \div \frac{15}{54} = \frac{18 \div 15}{1} =$
 $\frac{18}{15} = \frac{6}{5}$
- 14) $\frac{7}{10} \div \frac{7}{12} = \frac{84}{120} \div \frac{70}{120} = \frac{84 \div 70}{1} =$
 $\frac{84}{70} = \frac{6}{5}$
- 15) $\frac{7}{8} \times \frac{8}{7} = \frac{56}{56} = 1$
- 16) $\frac{54}{1} \times \frac{1}{54} = \frac{54}{54} = 1$
- 17) $\frac{1}{6} \times \frac{6}{1} = \frac{6}{6} = 1$
- 18) $\frac{2}{3} \div \frac{1}{6} = \frac{12}{18} \div \frac{3}{18} = \frac{12 \div 3}{1} = 4$
- 19) $2S - 10 = S + 10$
 $2S - 10 + 10 = S + 10 + 10$
 $2S = S + 20$
 $2S - S = S - S + 20$
 $S = 20$
- 20) Each received 20 points last week.
 Gary $2(20) - 10 = 30$ points
 Jenna $20 + 10 = 30$ points