

pg. 1

- ① $-5+5=0$ ② $8+3(2)-8=6$ ③ 4
 ④ ex. $\frac{2}{5} = \frac{4}{10} = \frac{6}{15}$
 ⑤ a. .25 b. .50 c. .75 d. .375 e. .625 f. .875
 ⑥ a. 2 b. 5 ⑦ 9.44 9.4219 9.38 9.3025
 ⑧ $\frac{107}{18} \approx 6$ 6 bags
 ⑨ $150 = .4n$ $n = 375$
 ⑩

HUNDRED CHART

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

f. 30

g. 7

pg. 2

- ① 1 ② -9 ③ $-7+2 = -5$
 ④ a. 3 b. 2
 ⑤ a. ex. 6, 12, 18 b. 2, 3, 7
 c. 3 d. 2, 3, 5, 7, 11, 13
 ⑥ a. $\bar{3}$ b. $\bar{6}$ c. .2 d. .8 e. .7 f. 9
 ⑦ a. 24030
 b. 8203050
 c. 5000.004
 ⑧ 4.33 ⑨ ex. 2.35
 ⑩ a. 93,000,000 b. 9.3×10^7
 ⑪ 6
 ⑫ $\frac{48.63}{-.1}$
 48.53 sec.

pg. 3

- ① $8-3+8 = 16-3 = 13$ ② 2 ③ $-7+8=1$
 ④ a. 10 b. 12 c. \$19.00 d. \$7.00
 ⑤ a. 2.25 b. 5.5 c. -1.75
 ⑥ $\frac{35}{11.75} < 3$ No, he doesn't.
 ⑦ -9 and -8 ⑧ Common factors 2, 3, 6.
 Greatest common factor is 6.
 ⑨ a. $2.3 \times 10^3 = 2300 = 2300$
 b. $3.25 \times 10^4 = 32500 = 32500$
 c. $1.42 \times 10^5 = 142000 = 142000$
 d. $2.5 \times 10^{-2} = .25 = .025$
 ⑩ a. 6
 b. 6
 c. 3 of 19 families have exactly 3 children.
 d. $\frac{4 \times 1 + 6 \times 2 + 3 \times 3 + 4 \times 4 + 5 + 8}{19} \approx 2.8$
 e. 2
 f. ex. The class might have two members from the same family.

pg. 4

- ① $\frac{2}{3} + \frac{2}{3} = \frac{4}{3}$ or $1\frac{1}{3}$ ② $\frac{3}{4} + \frac{5}{2} = \frac{3}{4} + \frac{10}{4} = \frac{13}{4}$ or $3\frac{1}{4}$
 ③ $-\frac{1}{4} - \frac{5}{8} = -\frac{2}{8} - \frac{5}{8} = -\frac{7}{8}$
 ④ a. 5% b. .1% c. $33\frac{1}{3}\%$ d. 200%
 ⑤ -2.5 $-2\frac{1}{3}$ -2 .3 $\frac{1}{3}$
 ⑥ 3.141593
 ⑦ -3
 ⑧ a. $-3 > -5$ b. $a < 10$
 ⑨ 2.84×10^7
 ⑩ $74-58 = 16$ inches
 ⑪ 7 ⑫ 36
 ⑬ a. \$19 b. 2
 ⑭ six

pg. 7

① a. $-3+5=2$ b. $-(-3+5)=-2$ c. $5-(-3)=8$

② a. 0.75 b. 0.085 c. 0.3

③ a. 20% b. 2% c. 2%

④ $\frac{1}{3} = .3$ $3\% = .03$ $.3 \times 10^3 = .003$

⑤ 24 ⑥ $.8 \times 20 = 16$

⑦ a. $\frac{120000 + 80000 + 32000 + 20000 + 3(18000)}{7}$
 $\frac{43714.29}{7}$

b. 120000 80000 32000 20000 18000 18000 18000

c. The median. The extreme high salaries make the mean salary high. The median represents the majority.

⑧ 100% is a certainty. It will rain.

⑨ $\frac{1}{8} \times 5280 = 660$ ft.

⑩ $10^5 = .00001$ cm.

pg. 5

① a. $.245 > .2458$ b. $3.20 = 3.2$ c. $-1.5 > -1.6$
 d. $\frac{1}{1} > \frac{1}{4}$ e. $6.009 > 6.0009$ f. $\frac{10}{1} = .10$

② $\frac{47}{48}$ $\frac{50}{51}$ $\frac{51}{52}$ ③ a. -3 b. -5

④ -4 ⑤ 7.07

⑥ $2 + 8 = 10$ $2 + 3 = 5$ $2 + 3 = 5$ $2 + 3 = 5$ $2 + 3 = 5$

⑦ 1.2×10^9

⑧ $\frac{82 + 88 + 91 + 79 + 80}{5} = 84$

⑨ $.87 \times 30 = 26$ correct

⑩ a. $69 - 42 = 27$ years
 b. 55 years
 c. 42 years
 d. 10 years

pg. 8

① -5 ② $\frac{1}{2} + \frac{3}{5} = \frac{5}{10} + \frac{6}{10} = \frac{11}{10}$ ③ $\frac{1}{2} + \frac{3}{5} = \frac{5}{10} + \frac{6}{10} = \frac{11}{10}$ ④ $2\frac{1}{2} + \frac{10}{2} = 2\frac{1}{2} + 5 = 7\frac{1}{2}$ ⑤ $3.048 \times 10^{-9} = .000000003048$ cm

⑥ a. 243 729 b. 3 previous term is next term.

⑦ $28 = n \cdot 50$ $n = .56 = 56\%$

⑧ a. $.75 \times 120 = \$90$ b. $1.06 \times 90 = \$95.40$

⑨ a. 6 b. 142857 c. 18 d. 83

⑩ $2+4+3=9$ 243 is odd $243 > 100$ $243 = 3^5$

⑪

```

    ⑦
   / \
  ⑤   ③
 /   \
⑩    ②
 / \
210 105
 / \
210 105
 / \
⑤   ③
 / \
⑦   ③
    
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⑫ a. 1 b. 2 c. 4 d. 8 e. 16 f. 32

pg. 6

① $\frac{3}{2} = \frac{3}{2}$ $\frac{4}{3} = \frac{4}{3}$ $\frac{5}{4} = \frac{5}{4}$ $\frac{6}{5} = \frac{6}{5}$ $\frac{7}{6} = \frac{7}{6}$ $\frac{8}{7} = \frac{8}{7}$ $\frac{9}{8} = \frac{9}{8}$ $\frac{10}{9} = \frac{10}{9}$

② $\frac{3}{2} = \frac{37}{38}$ $\frac{4}{3} = \frac{37}{35}$ $\frac{5}{4} = \frac{37}{32}$ $\frac{6}{5} = \frac{37}{25}$ $\frac{7}{6} = \frac{37}{20}$ $\frac{8}{7} = \frac{37}{15}$ $\frac{9}{8} = \frac{37}{12}$ $\frac{10}{9} = \frac{37}{10}$

③ $\frac{3}{2} = \frac{37}{38}$ $\frac{4}{3} = \frac{37}{35}$ $\frac{5}{4} = \frac{37}{32}$ $\frac{6}{5} = \frac{37}{25}$ $\frac{7}{6} = \frac{37}{20}$ $\frac{8}{7} = \frac{37}{15}$ $\frac{9}{8} = \frac{37}{12}$ $\frac{10}{9} = \frac{37}{10}$

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⑤ 18, 2, 3, 6, 9
 Common factors are 2, 3, 6.

⑥ a) $\frac{5}{2}$ b) $\frac{1}{2}$ c) $\frac{1}{3}$ d) $\frac{2}{5}$ ⑦ 53

⑧ 1 ft = 12 in $1 \frac{1}{2}$ ft = 18 in $1 \frac{1}{4}$ ft = 18 in $1 \frac{1}{8}$ ft = 18 in

⑨ 1 ft = 12 in $1 \frac{1}{2}$ ft = 18 in $1 \frac{1}{4}$ ft = 18 in $1 \frac{1}{8}$ ft = 18 in

⑩ $\frac{\$3.00}{.49} = 6$ fish

⑪ a. 52% is lowest 99% is highest
 b. $99 - 52 = 47\%$
 c. 82%

pg. 5

- ① a. $-246 > -2458$ b. $3.20 = 3.2$ c. $-1.5 > -1.6$
 d. $\frac{1}{3} > \frac{1}{4}$ e. $6.009 > 6.0009$ f. $\frac{1}{10} = .10$
- ② $\frac{47}{48}$ $\frac{48}{49}$ $\frac{50}{51}$ $\frac{51}{52}$ ③ a. -3 b. -5
- ④ -4 ⑤ 7.07
- ⑥ $(7 \times 2) + 8 \div (7 \div 2) + 3 \div 2 =$
- ⑦ 1.2×10^9
- ⑧ $\frac{82 + 88 + 91 + 79 + 80}{5} = 84$
- ⑨ $.87 \times 30 = 26$ correct
- ⑩ a. $69 - 42 = 27$ years
 b. 55 years
 c. 42 years
 d. 10

pg. 6

- ① $\frac{2}{3} = \frac{x}{57}$ ② $\frac{3}{4} = \frac{x}{50}$ ③ $\frac{1}{5} = \frac{4}{x}$ ④ $\frac{3}{x} = \frac{8}{20}$
- $3x = 114$ $4x = 150$ $x = 20$ $8x = 60$
 $x = \frac{114}{3} = 38$ $x = 37.5$ $\frac{1}{5} = \frac{4}{20} \checkmark$ $x = \frac{60}{8} = 7.5$
- $\frac{2}{3} = \frac{38}{57} \checkmark$ $\frac{3}{4} = \frac{37.5}{50}$ $\frac{3}{7.5} = \frac{8}{20} \checkmark$
- ⑤ 18 2,3,6,9 Common factors are 2,3,6.
 30 2,3,5,6,10,15
- ⑥ a) $\frac{1}{50}$ b) $\frac{1}{2}$ c) $\frac{1}{3}$ d) $2\frac{2}{3}$
- ⑦ 12 ⑧ 2.8×10^{10}
- ⑨ 1 ft = 12 in 1 mi = 5280 ft 1 yd = 3 ft
 1 qt = 2 pt 1 lb = 16 oz 1 qt = 4 cups
 1 gal = 4 qt 1 ton = 2000 lbs 1 yd = 36 in
- ⑩ $\begin{array}{r} \$8.00 \\ -5.00 \text{ bowl} \\ \hline 3.00 \end{array}$ $\frac{\$3.00}{.49} = 6$ fish
- ⑪ a. 52% is lowest 99% is highest
 b. $99 - 52 = 47\%$
 c. 82%

pg. 7

- ① a. $-3 + 5 = 2$ b. $-(-3 + 5) = -2$ c. $5 - (-3) = 8$
- ② a. .75 b. .085 c. 3
- ③ a. 20% b. 2% c. .2%
- ④ $\frac{1}{9} = .\bar{3}$ $3\% = .03$.3 $3 \times 10^{-3} = .003$
 3×10^{-3} 3% .3 $\frac{1}{3}$
- ⑤ 24 ⑥ $.8 \times 20 = 16$
- ⑦
- a. $\frac{120000 + 80000 + 32000 + 20000 + 3(18000)}{7}$
 $\$43714.29$
- b. 120000 80000 32000 20000 18000 18000 18000
 $\$20000$
- c. The median. The extreme high salaries make the mean salary high. The median represents the majority.
- ⑧ 100% is a certainty. It will rain
- ⑨ $\frac{1}{8} \times 5280 = 660$ ft.
- ⑩ $10^{-5} = .00001$ cm.

pg. 8

- ① -5 ② $\frac{2}{3} + \frac{25}{3} = \frac{27}{3} = 9$ ③ $2\frac{1}{10} + \frac{2}{10} = 2\frac{3}{10}$
- ④ a. 32 in. = $2\frac{2}{3}$ ft. b. 48 oz = 3 lb. c. 10 ft. = $3\frac{1}{3}$ yd.
- ⑤ $3.048 \times 10^{-9} = .000000003048$ cm
- ⑥ a. 243 729 b. 3x previous term is next term. or 3^n
- ⑦ $28 = n \cdot 50$ $n = .56 = 56\%$
 $\frac{28}{50} = n$
- ⑧ a. $.75 \times 120 = \$90$ b. $1.06 \times 90 = \$95.40$
- ⑨ a. $\bar{6}$ b. $\overline{142857}$ c. $\bar{18}$ d. $\bar{83}$
- ⑩ $2 + 4 + 3 = 9$ ⑪ $2 \times 3 \times 5 \times 7$
 243 is odd
 $243 > 100$
 $243 = 3^5$
- $\begin{array}{c} 210 \\ \swarrow \searrow \\ 2 \quad 105 \\ \swarrow \searrow \\ 3 \quad 35 \\ \swarrow \searrow \\ 5 \quad 7 \end{array}$
- ⑫ a.1 b.2 c.4 d.8 e.16 f.32

pg. 9

- ① $-3 + 25 = 22$ ② $-4 + 6 = 2$ ③ $-3 + 16 = 13$
- ④
 a. $40 \text{ cm} = .4 \text{ m}$ b. $90 \text{ ml} = .09 \text{ l}$ c. $80 \text{ km} = 80000 \text{ m}$
 d. $3 \text{ kg} = 3000 \text{ g}$ e. $5 \text{ cm} = 50 \text{ mm}$ f. $5000 \text{ g} = 5 \text{ kg}$
- ⑤ centi 10^{-2} ⑥ 9.14×10^{-7}
 deci 10^{-1}
 milli 10^{-3}
 kilo 10^3
- ⑦ a. $1, \frac{1}{2}$ b. Previous term $\times \frac{1}{2}$ is next term.
- ⑧ $\frac{1}{17} = .0588235294$ The display on most calculators does not tell us whether or not the decimal repeats.
- ⑨ a. $(2+2) \times 3 = 12$
 b. $(12-6) \div 2 = 3$
 c. $8 \times (3+3) \times 2 = 96$
- ⑩ a. $2(a+b) = 2a + 2b$
 b. $7(2+x) = 14 + 7x$
- ⑪ a. 4^4 b. $2 \cdot 1^3$ c. y^5
- ⑫ a. $\frac{3}{4} = \frac{6}{8} = \frac{9}{12}$

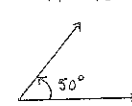
pg. 10

- ① $\frac{2}{3} = \frac{15}{x}$ ② $\frac{4}{5} = \frac{x}{85}$ ③ $\frac{1}{6}x = \frac{3}{10}$ ④ $\frac{x}{4} = -8$
 $2x = 45$ $5x = 340$ $(6)\frac{1}{6}x = \frac{3}{10}(6)$ $(4)\frac{x}{4} = -8(4)$
 $x = 22.5$ $x = 68$ $x = \frac{18}{10} = 1.8$ $x = -32$
 $\frac{2}{3} = \frac{15}{22.5} \checkmark$ $\frac{4}{5} = \frac{68}{85} \checkmark$ $x = \frac{18}{10} = 1.8$ $x = -32$
 $\frac{1}{6}(1.8) = .3 = \frac{3}{10} \checkmark$ $\frac{-32}{4} = -8 \checkmark$
- ⑤ $2 + 9 \times 8 - 1$ ⑥ $(8+4) \times 2 + 8$
 $2 + 72 - 1 = 73$ $12 \times 2 + 8 = 32$
- ⑦ $2(5^2) - 3 = 2(25) - 3 = 47$
- ⑧ a. $2 + 7 \times 3 > 2 \times 7 + 3$ ⑨ $12 + x$ years
 b. $4 \times 4 - 2 > 4 \times (4 - 2)$
 c. $8 - 2 \times 4 = 2 \times 4 - 8$
- ⑩ a. $3 + (-5) = -2$ b. $3(-5) = -15$
 c. $3 - (-5) = 8$ d. $2(3) - 5 = 1$
- ⑪ $A = lw$ ⑫ $p = 4.2 + 6.2 + 5.1$
 $A = 2.3 \times 1.8 = 4.14 \text{ in}^2$ $p = 15.5 \text{ cm}$
- ⑬ a. 175
 b. 25
 c. 77 took German, so $\frac{77}{175}$

pg. 11

- ① $\frac{1}{3} + \frac{2}{15} = \frac{5}{15} + \frac{2}{15} = \frac{7}{15}$
- ② $\frac{3}{4} - \frac{5}{6} = \frac{9}{12} - \frac{10}{12} = -\frac{1}{12}$
- ③ $\frac{2}{9} + -\frac{1}{3} = \frac{2}{9} + -\frac{3}{9} = -\frac{1}{9}$
- ④ $A = lw$ $A = 9(3.1) = 27.9 \text{ cm}^2$
- ⑤ $4^2 - 4(4) + 6$ ⑥ $9y$ years
 $16 - 16 + 6 = 6$
- ⑦ $\frac{8-5+6}{2} = \frac{9}{2}$ or $4\frac{1}{2}$ ⑧ $3(2 - (-3))$
 $3(5) = 15$
- ⑨ a. $3n + 8$
 b. $a - 10$
 c. $10 - 2n$
- ⑩ $1 \text{ kg} > 1 \text{ lb}$
 $1 \text{ l} > 1 \text{ qt}$
 $1 \text{ km} < 1 \text{ mi}$
- ⑪ $15 \frac{\text{gal}}{\text{gal}} \times \frac{4 \cancel{\text{qt}}}{\cancel{\text{gal}}} \times \frac{1 \text{ l}}{1.06 \cancel{\text{qt}}} = 56.6 \text{ l}$
- ⑫ a. 40° b. 120°
- ⑬ 36

pg. 12

- ① $\frac{1}{5} - \frac{3}{10} = \frac{2}{10} - \frac{3}{10} = -\frac{1}{10}$ ② $\frac{2}{3} - (-\frac{5}{6})$
 $\frac{4}{6} + \frac{5}{6} = \frac{9}{6}$ or $2\frac{1}{2}$
- ③ $2\frac{1}{4} - \frac{3}{8} = \frac{9}{4} - \frac{3}{8}$ ④ $10 - 2(8 - 2(3))$
 $\frac{18}{8} - \frac{3}{8} = \frac{15}{8}$ or $1\frac{7}{8}$ $10 - 2(8 - 6)$
 $10 - 2(2)$
 $10 - 4 = 6$
- ⑤ $2(-2) + 8(-3)^2 =$ ⑥ $A = \pi r^2$
 $-4 + 8(9)$ $A = \pi \cdot 3^2$
 $-4 + 72 = 68$ $A = 9\pi$ or 28.27 m^2
- ⑦ $\frac{.62 \text{ mi}}{1 \text{ km} \times} \cdot \frac{85 \text{ km}}{\text{hr}} = \frac{52.7 \text{ mi}}{\text{hr}}$
 or $\frac{1 \text{ km}}{.62 \text{ mi}} = \frac{85 \text{ km}}{x \text{ mi}}$ $x = 52.7 \frac{\text{mi}}{\text{hr}}$
- ⑧ a. ii b. ii c. iv d. i
- ⑨ $A = s^2$ $A = 2^2 = 4 \text{ in}^2$ ⑩ $V = s^3$ $V = 2^3 = 8 \text{ in}^3$
- ⑪ a. mean $\frac{83+95+90+71}{4} = 84.75$
 median $71 \ 83 \ 90 \ 95$ $\frac{90+83}{2} = 86.5$
 b. It depends on whether you use the mean or the median. Since there is only one low grade, probably an A- is appropriate.
- ⑫ $d + 12 = 27$ ⑬ 

SOLUTIONS

pg. 13

- ① $\frac{3}{8} + 5\frac{5}{8} + -\frac{3}{8} = 5\frac{5}{8}$ ② $\frac{3}{12} + \frac{5}{12} = \frac{8}{12} = \frac{2}{3}$
- ③ $\frac{3}{3} - 2\frac{5}{6} = \frac{4}{6} - 2\frac{5}{6} = -2\frac{1}{6}$
- ④ $A = s^2$ $64 = s^2$ $\sqrt{64} = \sqrt{64}$ $s = 8 \text{ ft}$
- ⑤ $A = \frac{1}{2}hb$ $A = \frac{1}{2}(5.3)(2.25) = 5.9625 \text{ cm}^2$
- ⑥ a. $p = 2(l+w)$
 $= 2(9) = 18 \text{ cm}$ b. $A = lw$
 $= 3(6) = 18 \text{ cm}^2$
- ⑦ $p = s - c$
 $= 110 - 58 = \#52$
- ⑧ a. meters b. kilograms c. millimeters d. liters
- ⑨ a. 1 liter = 10^3 cm^3
 $= 1000 \text{ cm}^3$ b. 2 liters = 2000 cm^3
- ⑩ $2^{10} = 1024$
 $10^2 = 100$
 $2^{10} > 10^2$
- ⑪ $h + 2h + h + 2 = 19$ or $4h + 2 = 19$
- ⑫ 18
- ⑬ $\square 4 \square = 4 \square 4 \square = 4 \square$

pg. 14

- ① $\frac{3}{3} - \frac{3}{4} = \frac{8}{12} - \frac{9}{12} = -\frac{1}{12}$ ② $-\frac{2}{3} - \frac{5}{6} = -\frac{4}{6} - \frac{5}{6} = -\frac{9}{6} = -\frac{3}{2}$
- ③ $\frac{3}{4} - \frac{3}{8} = \frac{6}{8} - \frac{3}{8} = \frac{3}{8}$
- ④ a. centimeters b. grams c. kilometers d. milliliters
- ⑤ $4 \times 5 = 20$ outfits
- ⑥ picture $11 \times 14 = 154 \text{ in}^2$
 picture with frame $13 \times 16 = 208 \text{ in}^2$
 $208 - 154 = 54 \text{ in}^2$
- ⑦ $A = \frac{1}{2}hb$
 $A = \frac{1}{2}(3.2)(10) = 16 \text{ in}^2$
- ⑧ a. 1 l weighs 1000g or 1 kg
 b. 48 l = 48000 g
 c. 48000 g = 48 kg
- ⑨ M T W T h F S S M T W T h F S
 P P P P P P P
 M M M M M M
 M M M M M M
 12 days later. Note 12 is the least common multiple of 2, 3, and 4.
- ⑩ $\square = 9 + \begin{matrix} \square & \square \\ \square & \square \end{matrix} = 4 + \begin{matrix} \square & \square & \square \\ \square & \square & \square \\ \square & \square & \square \end{matrix} = 1$ $9 + 4 + 1 = 14$

pg. 15

- ① $8 + 6 = 14$ ② $9 + 9 = 18$ ③ $\frac{-8+8}{-4} = 0$
- ④ a. $|-3| = |3|$ b. $|-4| > |2|$ c. $|-16| = |16|$
- ⑤ a. $A = bh$
 $A = 4 \cdot 8 = 32 \text{ cm}^2$ b. $p = 2(8+5)$
 $= 2(13) = 26 \text{ cm}$
- ⑥ Sample $\begin{matrix} 48 \\ \swarrow \searrow \\ 24 \quad 24 \\ \swarrow \searrow \swarrow \searrow \\ 12 \quad 12 \quad 12 \quad 12 \\ \swarrow \searrow \swarrow \searrow \swarrow \searrow \\ 6 \quad 6 \quad 6 \quad 6 \quad 6 \quad 6 \\ \swarrow \searrow \swarrow \searrow \swarrow \searrow \swarrow \searrow \\ 3 \quad 3 \quad 3 \quad 3 \quad 3 \quad 3 \quad 3 \quad 3 \end{matrix}$ $2 \times 2 \times 2 \times 2 \times 3$ or $2^4 \times 3$
- ⑦ a. 15, 18 b. previous term + 3 is next term or $3n$
- ⑧ $x^n = 625$ $5^4 = 625$ $x = 5$ $n = 4$
- ⑨ The area of your lawn sq. meters
 The area of the state of Texas sq. kilometers
 The area of your thumb nail sq. millimeters
 The area of a book cover sq. centimeters
- ⑩ a. $(-1)(2) = -2$ b. $(1)(-2) = -2$ c. $(-1)(-2) = 2$
 b. negative, positive

pg. 16

- ① -10 ② -315 ③ 69.03 ④ 2
- ⑤ 4 selections. Worse case: The first three picks yield three different colors. The fourth pick will be a duplicate of one of the three.
- ⑥ $1+17$ $2+16$ $3+15$ $4+14$ $5+13$
 $6+12$ $7+11$ $8+10$ $9+9$
 $13-5 = 8$ 13 and 5
- ⑦ $A = \pi r^2$
 $= \pi \cdot 2.5^2$
 $= \pi \cdot 6.25 \approx 19.6 \text{ cm}^2$
- ⑧ $3\frac{1}{4} p = 4.52$
 $\frac{4}{13} \cdot \frac{13}{4} p = 4.52 \cdot \frac{4}{13}$
 $p \approx 1.39$
 $\#1.39$ per pound
- ⑨ $3(8-2(3)) = 3(8-6)$
 $= 3 \cdot 2 = 6$ Ima didn't follow the order of operations. Multiplication before addition or subtraction.
- ⑩ $\begin{matrix} 2\text{cm} \\ \square \\ 2\text{cm} \\ 6\text{cm} \\ \square \\ 6\text{cm} \end{matrix}$ a. 8 cm, 24 cm
 b. 4 cm^2 , 36 cm^2
 c. 3 times
 d. 9 times
- ⑪ a. $3(1.29) + 2x = 5.45$ ⑫ 4 and 5
 b. $3.87 + 2x = 5.45$
 $2x = 1.58$
 $x = \#.79$

pg. 17

① $x - 9 = 12$
 $+9 +9$
 $x = 21$
 $21 - 9 = 12 \checkmark$

② $8 - 2x = 20$
 $-8 -8$
 $-2x = 12$
 $\frac{-2x}{-2} = \frac{12}{-2}$
 $x = -6$
 $8 - 2(-6) = 20$
 $8 + 12 = 20 \checkmark$

③ $x + 4 = -8$
 $-4 -4$
 $x = -12$
 $-12 + 4 = -8 \checkmark$

④ $2x + 9x + 3x = 14x$ ⑤ $4m + 2m - 3m = 3m$

⑥ Let $x = m \angle DBC$ ⑦ $x^2 - y^2$
 $32 + x = 90$
 $x = 58^\circ$

⑧ a. $(-5)(-7) = 35$ b. $-7(-5) = 35$ c. $(-5)(-7) = 35$
 $-7 + 5 = -2$ $5 + 7 = 12$

⑨ parallelogram - Both pairs of opposite sides are parallel.
 trapezoid - One pair of opposite sides is parallel.
 square - All angles are right angles and all sides are equal.
 kite - Two distinct pairs of consecutive sides are equal.
 rectangle - Opposite sides are equal and all angles are right angles.
 rhombus - Opposite sides are equal.

⑩ a. 4 b. 9 c. 16 d. 25 e. 36 f. 49 g. 64 h. 81 i. 100
 These are the perfect squares from 2 to 10.

⑪ 8 and 9 ⑫ $20\% = .2$
 $\frac{16}{.2} = \frac{.2n}{.2}$
 $80 = n$

⑬ $x^2 = 32$
 $2^5 = 32$
 2, 5

pg. 18

① $x - 5 = 10$
 $+5 +5$
 $x = 15$
 $15 - 5 = 10 \checkmark$

② Solution 1
 $x - \frac{1}{4} = -\frac{1}{2} + \frac{3}{4}$
 $+ \frac{1}{4} + \frac{1}{4}$
 $x = -\frac{1}{4}$
 $-\frac{1}{4} - \frac{1}{4} = -\frac{2}{4} \checkmark$

Solution 2
 $(4)(x - \frac{1}{4}) = (-\frac{1}{2})(4)$
 $4x - 1 = -2$
 $+1 +1$
 $4x = -1$
 $x = -\frac{1}{4}$

③ $2x - 8 = -13$
 $+8 +8$
 $2x = -5$
 $\frac{2x}{2} = \frac{-5}{2}$
 $x = -\frac{5}{2}$ or -2.5

$2(-\frac{5}{2}) - 8 = -13$
 $-5 - 8 = -13 \checkmark$

④ a. 1 b. 10 c. 100 d. 1000 e. 10000
 f. 1000000 g. The number of zeros equals the value of the exponent.

⑤ a. $A = p(1+r)^t$ $A = 1000(1+.05)^6$
 $A = \$1340.10$
 b. $\$1340.10 - \$1000 = \$340.10$

⑥ Let $n = m \angle ABD$ ⑦ a. 13, 10
 $n + 58 = 180$
 $n = 122^\circ$ b. Subtract 3 from previous to get next, or $28 - 3n$

⑧ a. h 1 2 3 4 5 h
 w 5.25 10.50 15.75 21 26.25 5.25 h
 b. $w = 5.25 h$

⑨ a. 4 b. -7 c. $4w, -2w$ d. $3x, -7y$

pg. 19

① $x - \frac{1}{4} = \frac{3}{4}$
 $+ \frac{1}{4} + \frac{1}{4}$
 $x = \frac{4}{4} = 1$
 $\frac{4}{4} - \frac{1}{4} = \frac{3}{4} \checkmark$

② $12 - x = 15$
 $-12 -12$
 $-x = 3$
 $x = -3$
 $12 - (-3) = 15 \checkmark$

③ $\frac{2}{3} - x = \frac{1}{6}$
 $-\frac{2}{3} -\frac{2}{3}$
 $-x = -\frac{3}{6}$
 $x = \frac{3}{6} = \frac{1}{2}$
 $\frac{2}{3} - \frac{1}{2} = \frac{1}{6}$
 $\frac{4}{6} - \frac{3}{6} = \frac{1}{6} \checkmark$

④ $A = bh$
 $A = (3.8)(7.1)$
 $A = 26.98 \text{ ft}^2$

⑤ a. $2x + x + 30 = 180$
 $3x + 30 = 180$
 $3x = 150$
 $x = 50^\circ$

⑥ 3, 4 ⑦ a. 2, 3, 4, 6
 b. ex. 24, 36, 48, 60

⑧ $8x - 2y + z$ ⑨ $n + 3 = -18$

⑩ $x - 5 = -3$
 $+5 +5$
 $x = 2$
 To "unlock" this equation add 5 to both sides of the equation.

⑪ a. 2 3 4 5 6 7 8
 5 7 9 ⑫ ⑬ 15 ⑭ 17
 b. Add 2 to the previous term to get the next term, or $y = 2x + 1$

⑫ $A = 500(1+.10)^{10}$
 $A = \$1296.87$
 Missy has enough money for the trip.

pg. 20

① a. $\frac{1}{3}$ b. $\frac{1}{3}$ c. $\frac{1}{6}$ d. $4\frac{1}{2}$ e. $2\frac{1}{2}$

② a. 2 b. 1 c. 10000 d. $\frac{1}{10}$ or .1

③ $\frac{2}{3}x = 6$ ④ $\frac{x}{2.5} = \frac{-8.1}{.5}$
 $.5x = -20.25$
 $x = -40.5$
 $\frac{-40.5}{2.5} = \frac{-8.1}{.5}$
 $-16.2 = -16.2 \checkmark$

⑤ $\frac{x}{8} = \frac{1}{4}$
 $8 = 4x$
 $2 = x$
 $\frac{2}{8} = \frac{1}{4}$
 $\frac{1}{4} = \frac{1}{4} \checkmark$


⑥ $2n + 6 = 24$ ⑦ a. $p = 6 + 8 + 10 = 24$ units
 b. $A = \frac{1}{2}(6)(8) = 24$ units²

⑧ a. 2, 4, 5, 10 ⑨ $5x - 3y$
 b. ex. 40, 60, 80, 100

⑩ $-8a + b$

⑪ $p = 2l + 2w$
 $130 = 2l + 2(25)$
 $130 = 2l + 50$
 $80 = 2l$
 $40 \text{ ft} = l$

⑫ $2\frac{1}{2} + 1\frac{1}{3}$
 $2\frac{3}{6} + 1\frac{2}{6} = 3\frac{5}{6} \text{ c}$

⑬ 

⑭ $3(-3)^2 + (-1)$
 $3(9) - 1 = 26$

pg. 21

① $\frac{3x}{3} = \frac{6}{3}$
 $x = 20$
 $3(20) = 6 \checkmark$

② $-9 + x = 1.2$
 $+9 \quad +9$
 $x = 10.2$
 $-9 + 10.2 = 1.2 \checkmark$

③ $\frac{x}{3} = \frac{5}{2}$
 $2x = 15$
 $x = \frac{15}{2}$ or 7.5
 $\frac{7.5}{3} = \frac{5}{2} \checkmark$

④ a. $f(2) = 2(2) + 1 = 5$
 b. $f(3) = 2(3) + 1 = 7$
 c. $f(-1) = 2(-1) + 1 = -1$

⑤ a. $\frac{1}{3}(3) = 1$
 b. $(\frac{2}{3})(\frac{3}{2}) = 1$
 c. $5(\frac{1}{5}) = 1$
 d. $\frac{1}{n}(n) = 1$

Any number x its reciprocal = 1

⑥ a. $\frac{10}{3} \cdot \frac{3}{3} = 10$ b. $\frac{5}{2} = 2\frac{1}{2}$ c. $\frac{7}{4} = 1\frac{3}{4}$ d. $\frac{11}{5} = 2\frac{1}{5}$ e. $\frac{9}{2} = 4\frac{1}{2}$

⑦ $3n - 2 = 15$ ⑧ $1 \times 18, 2 \times 9, 3 \times 6$

⑨ a. 1 b. $\frac{1}{2}$ c. 1 d. 0

⑩ a. 6 b. 3 c. 8 d. 5 e. 9 f. 7

⑪ $p = 2(l + w)$
 $78 = 2(l + 12.5)$
 $78 = 2l + 25$
 $53 = 2l$
 $l = 26.5 \text{ ft.}$

pg. 22

① $x - \frac{2}{5} = \frac{1}{10}$
 $+\frac{2}{5} \quad +\frac{2}{5} = \frac{4}{10}$
 $x = \frac{5}{10} = \frac{1}{2}$
 $\frac{5}{10} - \frac{4}{10} = \frac{1}{10} \checkmark$

② $\frac{2}{3}x = 10$
 $\frac{3}{2} \cdot \frac{2}{3}x = 10 \cdot \frac{3}{2}$
 $x = 15$
 $\frac{2}{3}(15) = 10 \checkmark$

③ $5x = -10.5$
 $x = -2.1$
 $5(-2.1) = -10.5 \checkmark$

④ $2x - 4 = -9$
 $+4 \quad +4$
 $2x = -5$
 $x = -\frac{5}{2}$ or -2.5
 $2(-\frac{5}{2}) - 4 = -9$
 $-5 - 4 = -9 \checkmark$

⑤ a. $f(1) = 3(1) - 2 = 1$
 b. $f(2) = 3(2) - 2 = 4$
 c. $f(3) = 3(3) - 2 = 7$

⑥ $\frac{1}{4} = \frac{x}{10}$

⑦  ⑧ $8n = 48$

⑨ List factors:
 42: 1, 2, 3, 6, 7, 14, 21, 42
 84: 1, 2, 3, 4, 6, 7, 12, 14, 21, 28, 42, 84
 105: 1, 3, 5, 7, 15, 21, 35, 105

⑩ $A = (2, 4)$
 $B = (-3, 1)$
 $C = (-5, -3)$
 $D = (3, -3)$

⑪ $\frac{397 \text{ mi}}{12.8 \text{ gal}} \approx 31 \frac{\text{mi}}{\text{gal}}$

⑫ a. 47 is prime
 b. $4 + 7 = 11$
 c. $(4)(7) = 28$

⑬ $2^x = 16$
 $2^x = 2^4$
 $x = 4$

pg. 23

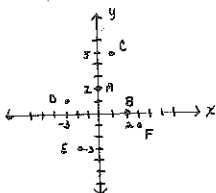
① $\frac{x}{2} \cdot \frac{2}{2} = \frac{1}{2}$ ② $\frac{5}{8} \cdot -\frac{8}{7} = -\frac{5}{7}$ ③ $\frac{x}{5} \cdot -\frac{3}{84} = \frac{3}{20}$

④ $2x - 3 = -11$
 $+3 \quad +3$
 $2x = -8$
 $x = -4$
 $2(-4) - 3 = -11$
 $-8 - 3 = -11 \checkmark$

⑤ $-\frac{3}{2}x + 5 = -10$
 $-5 \quad -5$
 $(-\frac{2}{3}) \cdot -\frac{3}{2}x = -15 \cdot (-\frac{2}{3})$
 $x = 10$
 $-\frac{3}{2}(10) + 5 = -10$
 $-15 + 5 = -10 \checkmark$

⑥ $15 \text{ min} = \frac{1}{4} \text{ hr}$ Total time to prepare: $\frac{1}{2} + \frac{1}{4} + \frac{1}{4}$
 $\frac{1}{2} + \frac{1}{4} = 2 \text{ hr}$
 $3:00 - 2 \text{ hr} = 1:00 \text{ p.m.}$

⑦ 

⑧  ⑨ $2(3 \cdot 2) + 2(2 \cdot 5) + 2(3 \cdot 5)$
 $12 + 20 + 30 = 62 \text{ cm}^2$

⑩ $2n + (-n) > 10$

⑪ a. pounds 1 2 3 4 5 p
 cost 1.29 2.58 3.87 5.16 6.45 1.29p

b. $c = 1.29p$ c. $c = 1.29(2.5) = \$3.23$

pg. 24

① $x - \frac{2}{3} = \frac{5}{6}$
 $+\frac{2}{3} \quad +\frac{2}{3} = \frac{4}{6}$
 $x = \frac{9}{6}$ or $\frac{3}{2}$ or $1\frac{1}{2}$
 $\frac{9}{6} - \frac{4}{6} = \frac{5}{6} \checkmark$

② $\frac{3}{4}x = 4$
 $(\frac{4}{3}) \cdot \frac{3}{4}x = 4(\frac{4}{3})$
 $x = \frac{16}{3}$ or $5\frac{1}{3}$
 $(\frac{3}{4})(\frac{16}{3}) = 4 \checkmark$

③ $\frac{x}{3} = \frac{5}{32}$
 $15 = 32x$
 $\frac{15}{32} = x$
 $\frac{15}{32} = \frac{5}{32} \cdot 3 \checkmark$


④ a. II & IV
 b. I & III

⑤ a. $A = \frac{1}{2}(4)(6+12)$
 $\frac{1}{2}(4)(18) = 36 \text{ cm}^2$

b. $p = 5 + 6 + 5 + 12 = 28 \text{ cm}$

⑥ $\frac{3}{4} \cdot 3 = \frac{9}{4} = 2\frac{1}{4} \text{ lb}$


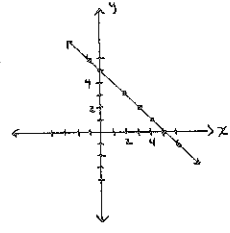
⑦ a. $45 \leq s \leq 65$

b. 

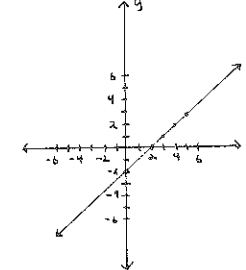
⑧ a. $2000(1.105)^6 = \$3640.86$
 b. About 7 years

⑨ a. about 3 pounds
 b. about 90 pounds
 c. at age 2
 d. about 80 pounds

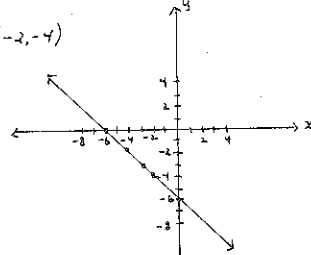
pg. 25

- ① $(\frac{1}{2})(\frac{3}{4}) = \frac{3}{8}$ ② $(\frac{1}{3})(\frac{4}{5}) = \frac{4}{15}$ or $\frac{1}{3}$ ③ $(\frac{2}{3})(\frac{5}{7}) = \frac{10}{21}$ or $1\frac{1}{7}$
- ④ $4x + 2 = 16$
 $-2 \quad -2$
 $4x = 14$
 $x = 3.5$
 $4(3.5) + 2 = 16$
 $14 + 2 = 16 \checkmark$
- ⑤ $2 = -3 - x$
 $+3 \quad +3$
 $5 = -x$
 $-5 = x$
 $2 = -3 - (-5)$
 $2 = -3 + 5 \checkmark$
- ⑥ $\frac{x}{2} - 3 = 6$
 $+3 \quad +3$
 $\frac{x}{2} = 9$ (2)
 $x = 18$
 $\frac{18}{2} - 3 = 6$
 $9 - 3 = 6 \checkmark$
- ⑦ S.A. = $2(\frac{1}{2} \cdot 1 \cdot 2) + 1 \cdot 4 + 2 \cdot 2 \cdot 4 + 2 \cdot 4$
 $= 2 + 4 + 8.8 + 8 = 22.8 \text{ cm}^2$
- ⑧ $\frac{1 \text{ in}}{3.5 \text{ in}} = \frac{25 \text{ mi}}{x}$ $x = 87.5 \text{ mi}$
- ⑨ $4 \div 3 \times 3 \times 4 \div 4 \times 2 \div 2 \times 3 \div 3$
 or $\frac{4}{3} \times 3 \times 4 \div 4 \times 2 \div 2 \times 3 \div 3$
- ⑩ a. $1 \leq n \leq 10$
 b. 
- ⑪ a. ex (2,3) (3,2) (4,1) 
- ⑫ a. $3 \cdot 5 = 15$ outfits
 b. $p(\text{blue and red}) = \frac{1}{15}$

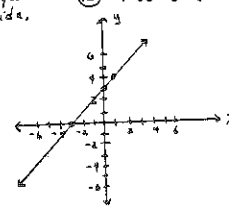
pg. 26

- ① $(\frac{3}{4})(\frac{7}{3}) = \frac{7}{4}$ or $1\frac{3}{4}$ ② $(-\frac{1}{2})(\frac{5}{4}) = -\frac{5}{8}$ ③ $(\frac{5}{\pi})(\frac{16}{3}) = \frac{25}{3}$ or $8\frac{1}{3}$
- ④ $c^2 = 5^2 + 12^2$
 $c^2 = 169$
 $\sqrt{c^2} = \sqrt{169}$
 $c = 13 \text{ units}$
- ⑤ $V = \ell w h$
 $V = 5 \cdot 1 \cdot 3 = 15 \text{ in}^3$
- ⑥ $-\frac{1}{2}x = \frac{1}{4}$
 $(-2)(-\frac{1}{2})x = (-\frac{1}{4})(-2)$
 $x = -\frac{1}{2}$
 $(-\frac{1}{2})(-\frac{1}{2}) = \frac{1}{4} \checkmark$
- ⑦ $\frac{2}{3}x = \frac{5}{6}$
 $(\frac{3}{2})(\frac{2}{3})x = (\frac{5}{6})(\frac{3}{2})$
 $x = \frac{5}{4}$ or $1\frac{1}{4}$
 $(\frac{2}{3})(\frac{5}{4}) = \frac{5}{6} \checkmark$
- ⑧ $\frac{149}{460} = .324$ ⑨ $\frac{3}{4} \cdot \frac{1}{2} = \frac{3}{8} \text{ c}$
- ⑩ a. $2n + 6 = 34$
 b. $-6 \quad -6$
 $(\frac{1}{2})2n = 28(\frac{1}{2})$
 $n = 14$
- ⑪ a. (4,2) (5,3) (3,1) 

pg. 27

- ① $\frac{d}{f}$ rectangle
 $\frac{b}{c}$ square
 $\frac{a}{e}$ trapezoid
 $\frac{c}{d}$ circle
 $\frac{a}{e}$ triangle
 $\frac{e}{d}$ parallelogram
- ② a. R b. R c. O d. R
- ③ $C = 2 \cdot \pi \cdot 3.1$
 $= 6.2 \pi \approx 19.5 \text{ cm}$
- ④ $25^2 = 7^2 + b^2$ ⑤ $V = \pi r^2 h$
 $576 = 6^2 + b^2$ $= \pi \cdot 4^2 \cdot 5$
 $24 = b$ $= 80 \pi \approx 251.3 \text{ cm}^3$
 $b = 24 \text{ units}$
- ⑥ $\frac{3}{1.29} = \frac{x}{10.00}$ you can buy 23 pencils
 $\frac{1.29x = 30.00}{1.29} \quad 1.29$
 $x = 23.26$
- ⑦ a. (-3,-3) (-4,-2) (-2,-4) 

pg. 28

- ① $3 \div \frac{1}{3} = 9$ ② $8 \div \frac{5}{3} = \frac{24}{5}$ or $4\frac{4}{5}$ ③ $-\frac{3}{4} \div \frac{1}{2} = -\frac{3}{2}$ or $-1\frac{1}{2}$
- ④ $.420 \cdot 400 = 168 \text{ hits}$
- ⑤ a. $3 \cdot .9 = 2.7 \text{ mi}$
 b. $5 \cdot .9 \text{ E}$
 $t = 5.6 \text{ times}$, so 6 times will be more than 5 miles.
- ⑥ $-\frac{3}{4}x = 15$ ⑦ $-\frac{3}{5}x = \frac{2}{3}$ ⑧ $\frac{1}{2}x + 3 = 8$
 $(-\frac{4}{3})(-\frac{3}{4})x = 15(-\frac{4}{3})$ $(-\frac{5}{3})(-\frac{3}{5})x = \frac{2}{3}(-\frac{5}{3})$ (2) $\frac{1}{2}x = 5 - 3$
 $x = -20$ $x = -\frac{10}{9}$ or $-1\frac{1}{9}$ $x = 2$
 $-\frac{3}{4}(-20) = 15 \checkmark$ $(-\frac{3}{5})(-\frac{10}{9}) = \frac{2}{3} \checkmark$ $\frac{1}{2}(2) + 3 = 8 \checkmark$
- ⑨ $\frac{1.29}{2} \approx .65/\text{l}$ $\frac{1.50}{2.13} \approx .70/\text{l}$ The 2 liter bottle is the better buy.
- ⑩ $15^2 + 36^2 = 39^2$
 $225 + 1296 = 1521$
 $1521 = 1521$
 Since the sum of the squares of the two shorter sides equals the square of the longer side, it is a right triangle.
- ⑪ (0,3) (-3,0) (1,4) 
- ⑫ 20% increase means 120% or 1.2
 $1.2(260) = 312 \text{ students}$
- ⑬ $4.50 \cdot 6 \cdot 20 = 4540$

pg. 29

- ① $1 \div \frac{1}{2} = 1 \cdot 2 = 2$
- ② $-\frac{2}{3} \div \frac{5}{6} = -\frac{2}{3} \cdot \frac{6}{5} = -\frac{14}{5}$ or $-2\frac{4}{5}$
- ③ rewrite as $\frac{4}{9} \div \frac{1}{3} = \frac{4}{9} \cdot \frac{3}{1} = \frac{4}{3}$ or $1\frac{1}{3}$
- ④ $15\frac{1}{2} \div 1\frac{15}{16}$
 $\frac{31}{2} \div \frac{31}{16} = \frac{31}{2} \cdot \frac{16}{31} = 8$ servings
- ⑤ $2x - 4 = 8$
 $+4 +4$
 $\frac{1}{2} \cdot 2x = 12 \cdot \frac{1}{2}$
 $x = 6$
 $2(6) - 4 = 8 \checkmark$
- ⑥ $\frac{3}{7}x - 5 = 16$
 $+5 +5$
 $\frac{4}{3} \cdot \frac{3}{4}x = 21 \cdot \frac{4}{3}$
 $x = 28$
 $\frac{3}{4}(28) - 5 = 16$
 $21 - 5 = 16 \checkmark$
- ⑦ $\frac{2}{3}x = \frac{5}{7}$
 $(\frac{3}{2}) \frac{2}{3}x = \frac{5}{7}(\frac{3}{2})$
 $x = \frac{15}{14}$ or $1\frac{1}{14}$
 $\frac{3}{2}(\frac{15}{14}) = \frac{5}{7}$
- ⑧ $\frac{300}{40} = 7.5$ hours
- ⑨ a. $p(\text{club}) = \frac{13}{52}$ or $\frac{1}{4}$
 b. $p(\text{King}) = \frac{4}{52}$ or $\frac{1}{13}$
- ⑩ a. $\frac{1}{5} = \frac{x}{28}$
 $b. 5x = 28$
 $x = 5.6$ lbs
- ⑪ $3m + 4n - 8m + 2n = -5m + 6n$
- ⑫ a. $\sim 25 \text{ in}^2$ b. ~ 9 c. $\sim 800 \text{ ft}^3$

pg. 30

- ① $\frac{2}{3}x + \frac{3}{4}y + \frac{1}{4}y = \frac{2}{3}x + \frac{4}{4}y = \frac{2}{3}x + y$
- ② $8a - 7a = a$
- ③ $2x^2 + 5x - x^2 = x^2 + 5x$
- ④ Total = 15
 green = 2
 $p(\text{green}) = \frac{2}{15}$
- ⑤ $15 = 2n$
 $75 = n$
- ⑥ $2(x-2) = -3x + 3x - 8$
 $2x - 4 = 0 - 8$
 $+4 +4$
 $2(-2-2) = -3(-2) + 3(-2) - 8$
 $2(-4) = 6 - 6 - 8$
 $-8 = -8 \checkmark$
- $\frac{1}{2} \cdot 2x = -4 \cdot \frac{1}{2}$
 $x = -2$
- ⑦ 9 total children
 $\frac{4}{9}(45) = 20$ boys
- ⑧ $(4.5)(18.8) = 84.6$ mi
- ⑨ a. -3 b. 3
- ⑩ a. \$43.50; \$.10; 80; \$.60; \$.30; \$.15; \$298.90
 b. 80 is the number of chips
 c. D4 and D8