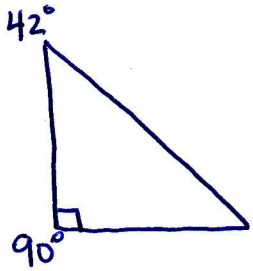
2017 Part 1 Solutions

① 11:35 am → 2:15 pm

$$\begin{array}{r} 2 \text{ hrs } 40 \text{m} \\ -\ 1 \text{ hr } 25 \text{ m} \\ \hline 1 \text{ hr } 15 \text{m} = \boxed{75 \text{ min}} \end{array}$$

$$\begin{array}{r} 35 \\ +50 \\ \hline 85 \text{ min lunch/run} \end{array}$$

↳ 1 hr 25 min

② 

$$\begin{array}{r} 180 \\ -132 \\ \hline \boxed{48^\circ} \end{array} \quad \leftarrow \quad \begin{array}{r} 90 \\ +42 \\ \hline 132 \end{array}$$

③ total: 40
orange: 12

$$\frac{12}{40} = \frac{6}{20} = \frac{30}{100} = \boxed{30\%}$$

④ 26.5 mean
× 4 boys
106.0 total points

3 boys $\begin{array}{r} 12 \\ 40 \\ +22 \\ \hline 74 \text{ points} \end{array}$

$$\begin{array}{r} 106 \\ -\ 74 \\ \hline \boxed{32 \text{ points}} \end{array}$$

⑤ 6 Monday
18 Tuesday (3× Monday)
9 Wednesday ($\frac{1}{2}$ of Tuesday)
+
33 naps

⑥ $\begin{array}{r} 28 \\ \times\ 3 \\ \hline 84 \text{ parts} \end{array}$

$$\begin{array}{r} \$3.54 \\ \times\ 84 \\ \hline 1416 \\ +2832 \\ \hline \$297.36 \end{array}$$

⑦ guess & check

boys	goats
5	10
6	(12)

$(5 \times 2) + (10 \times 4) = 50$

$(6 \times 2) + (12 \times 4) = 60$ ✓

-OR-

$2b = g$

$2b + 4g = 60$

$g + 4g = 60$

$5g = 60$

$g = (12)$

⑧

$$\begin{array}{r} 47.82 \\ +\ 29.67 \\ \hline 77.49 \end{array} \qquad \begin{array}{r} 100.08 \\ -\ 77.49 \\ \hline \$22.59 \end{array}$$

⑨ $\frac{12 \text{ balls}}{7 \text{ pokemon}} = \frac{? \text{ balls}}{133 \text{ pokemon}}$ $\frac{12 \times 19}{7 \times 19} = \frac{228}{133}$

⑩

$$\begin{array}{r} 14 \text{ r } 10 \\ 24 \overline{)\ 346} \\ -24 \\ \hline 106 \\ -\ 96 \\ \hline 10 \end{array}$$

(15) busses need to carry all of the kids.

⑪

$$\begin{array}{r} 37 \\ \times 52 \\ \hline 74 \\ 1850 \\ \hline 1924 \end{array}$$

NOTA

⑫ in order least to greatest

find the mean

4.2 (5.6 6.3) 7.1

$5.6 + 6.3 = 11.9$

$$\begin{array}{r} 5.95 \\ 2 \overline{)\ 11.90} \\ 10 \\ \hline 19 \\ 18 \\ \hline 10 \end{array}$$

⑬ $14 + 20 = 34$ total

14 are grass

$\frac{14}{34} = \frac{7}{17}$

(14)

$$\begin{array}{r} 16 \\ \times 30 \\ \hline 480 \end{array} \qquad \begin{array}{r} 23 \\ \times 28 \\ \hline 184 \\ +460 \\ \hline 644 \end{array} \qquad \begin{array}{r} 644 \\ -480 \\ \hline 164 \end{array}$$

(15)

$$2\tfrac{2}{3} = 2\tfrac{16}{24}$$
$$+\,1\tfrac{7}{8} = 1\tfrac{21}{24}$$
$$3\tfrac{37}{24} = 4\tfrac{13}{24}$$

$$4\tfrac{13}{24}$$
$$+\,1\tfrac{21}{24}$$
$$5\tfrac{34}{24} = 6\tfrac{10}{24}$$

$$6\tfrac{10}{24}$$
$$+\,1\tfrac{21}{24}$$
$$7\tfrac{31}{24} = 8\tfrac{7}{24}$$

(16)

$$\begin{array}{r} 13 \\ \times 5 \\ \hline 65 \end{array} \qquad \begin{array}{r} 23 \\ \times 2 \\ \hline 46 \end{array} \qquad \begin{array}{r} 65 \\ +46 \\ \hline 111 \end{array}$$

$$\begin{array}{r} 12.68 \\ \times \quad 111 \\ \hline 1268 \\ 12680 \\ +126800 \\ \hline \$1407.48 \end{array}$$

(17)

30 ft ÷ 2.5 = 12 incubators fit across length

35 ft ÷ 2.5 = 14 incubators fit across width

5 ft ÷ 2.5 = 2 incubators tall

$12 \times (14 \times 2) =$

$(14 \times 2) = 28$

$$\begin{array}{r} 12 \\ \times 28 \\ \hline 96 \\ +240 \\ \hline 336 \end{array}$$

(18) 58 + 72 + 60 + 67 + 58 + 45 = 360 minutes

$60\overline{)360}$ → 6 hours

(19) 136 pints = _____ gallons

8 pints = 1 gallon

$8\overline{)136}$ → 17

$\begin{array}{r} 8 \\ \hline 56 \end{array}$

(20)

$8\overline{)219.580}$ → $27.447 \approx 27.45$

$\begin{array}{r} 16 \\ \hline 59 \\ 56 \\ \hline 35 \\ 32 \\ \hline 38 \\ 32 \\ \hline 60 \\ 56 \\ \hline \end{array}$

(21) $212 \times 9 = 1908$ inches

$12 \overline{)1908}$ → 159 feet

12

70

60

108

(22) 15 ft slope day +3 night −1

day	+3	−1
1	3	2
2	5	4
3	7	6
4	9	8
5	11	10
6	13	12
7	15	14

out on day 7

(23) $16\frac{2}{3} \div 18$

$\frac{50}{3} \div 18$

$\frac{50}{3} \times \frac{1}{18} = \frac{50}{54} = \frac{25}{27}$

(24) \$45 card set 20% off

$45 \times .20 = 9.00$

$45 - 9 = 36$

-OR- $45 \times .80 = 36.00$

If the sale is 20% off, you pay 80% of the price.

(25) $85 \times \frac{2}{5} = \frac{170}{5} = 34$ $34 \times \frac{1}{2} = \frac{34}{2} = 17$

- OR -

$\frac{2}{5} \times \frac{1}{2} \times 85 = \frac{85}{5} = 17$

2017 Part 2 Solutions

(26) 12 + 24 + 14 = 50 stops

$\frac{14}{50} = \frac{28}{100} =$ (28%)

(27) 11:18 am → 2:32 pm

$\overset{2}{\cancel{3}}\overset{74}{\cancel{14}}$ hrs min

$-$ 2 hrs 32 min

42 min collecting Poke Balls

$\times$ 3 3 balls per min

(126)

2 hrs + 32 min = 2 hr 32 min

(NOTA)

(28) 14.2 + 18.5 + 23.6 = 56.3

$3\overline{)56.30}$ = 18.76 ≈ (18.8)

3
26
24
23
21
20
18

(29) P 4 x 18 = 72

E 6 x 13 = 78

150 hours

$9.57
× 150
47850
+ 95700
$1435.50

(30) 3 days/wk for 2 weeks is 6 days

J 4.3 x 6 = 25.8

B 3.7 x 6 = −22.2

(3.6)

(31) $\frac{8 \text{ hrs}}{5 \text{ cars}} = \frac{104 \text{ hrs}}{? \text{ cars}}$

$\frac{8 \times 13}{5 \times 13} = \frac{104}{(65)}$

240 in = 20 ft

(32) $\frac{6 \text{ Pokemon}}{11 \text{ ft}} = \frac{? \text{ Pokemon}}{240 \text{ inches}}$

$\frac{6}{11} = \frac{\square}{20}$

$11\overline{)120.0}$ = 10.90 ≈ (10.9)

11
100
99
10

without cross multiplication

$\frac{6 \times 20}{11 \times 20} = \frac{120 \div 11}{220 \div 11} \quad \frac{\square}{20}$

$120 \div 11 = \square$

(33) $6.34\overline{)76.08}$ = 12.

634
1268
-1268
0

12 pies

4 + 6 = 10

12 − 10 = (2 pies) (Caterpie)

(34) 24.55 × .08 = 1.9640

24.55 + 1.96 = ($26.51)

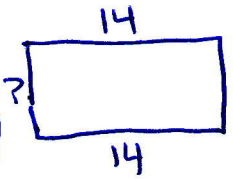
-OR-

24.55 × 1.08

19640
+2455 00
$26.5140 ≈ ($26.51)

(35) P = 52 ft

A = 14 × 12 = (168 sq ft)



52 − 28 = 24 ÷ 2 = 12 ft (width)

(36) $16\frac{5}{6} = 16\frac{5}{6}$

$-12\frac{1}{2} = -12\frac{3}{6}$

$4\frac{2}{6} = 4\frac{1}{3}$ ft

4 ft = 48 inches

$\frac{1}{3}$ ft = 4 inches

(52 inches)

(37) winner must have lowest time

14.6
14.156 smallest
14.47

(38) 15 + (7×6) = 57 inches

$12\overline{)57}$ = $4\frac{9}{12}$ = ($4\frac{3}{4}$ ft)

48
9

(39) 6 candies

week		
1	18	(tripled)
2	54	"
3	162	"
4	(486)	"

(40) 170 × 4 = 680 sessions

680 × 23

2040

+13600

($15,640)

(41) (P) $\frac{1}{3} \times 150 = 50$

(B) $\frac{2}{5} \times 150 = 60$

110

150 − 110 = (40) berries

(42) 48 × 57

336

+2400

2736 sq ft

1 sq yard = 9 sq ft

304

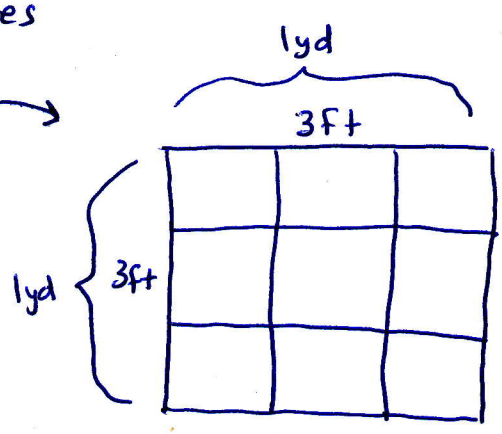
9 | 2736

27

3

0

36



(43) $\frac{4}{7} \times \square = 136$

$136 \div \frac{4}{7} =$

$136 \times \frac{7}{4} = \frac{952}{4}$

$= (238)$

136 × 7

952

238

4 | 952

8

15

12

32

(44) $3\frac{5}{12} + 2\frac{1}{6} + 1\frac{2}{3} =$

$3\frac{5}{12} + 2\frac{2}{12} + 1\frac{8}{12} = 6\frac{15}{12} = 7\frac{3}{12} = (7\frac{1}{4})$ NOTA

(45) $73.00 - 16.75 = 56.25$

$125 \overline{)56.25} = .45$

500

625

625

0

(46) $3\frac{1}{6} = 3\frac{3}{18} = 2\frac{21}{18}$

$-2\frac{5}{9} = 2\frac{10}{18} = 2\frac{10}{18}$

$\frac{11}{18}$

(47) 1 hr = 3600 sec

$\frac{14 \text{ hurdles}}{35 \text{ sec}} = \frac{? \text{ hurdles}}{3600 \text{ sec}}$

$\frac{14 \div 7}{35 \div 7} = \frac{2 \times 720}{5 \times 720} = \frac{1440}{3600}$

(48) $23 \overline{)476.1} = 20.7$

46

161

161

0

20 whole balls

if it can only hold 20.7, it can't fit 21 balls

(49) 23.5 ft = _____ inches

23.5

x 12

470

+2350

282.0

282

(50) $\frac{3 \text{ Pokemon}}{14 \text{ pounds}} = \frac{? \text{ Pokemon}}{294}$

$\frac{3 \times 21}{14 \times 21} = \frac{63}{294}$

$14 \overline{)294} = 21$

28

14