

Mathletics

Series F & G

Problem Solving



Problem Solving Record Sheet

Name _____

Draw a diagram	
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Answers

Draw a diagram

Worksheet 1

1 cheese + red pepper, cheese + mushrooms, cheese + celery;
cheese/ham + red pepper, cheese/ham + mushrooms,
cheese/ham + celery

2 teacher check; all weed, 2 do each of the 2nd jobs,
1 does each of the 3rd jobs

Worksheet 2

1 13; Fran, John, Bessie, Dan Jr, Amelia

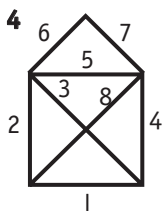
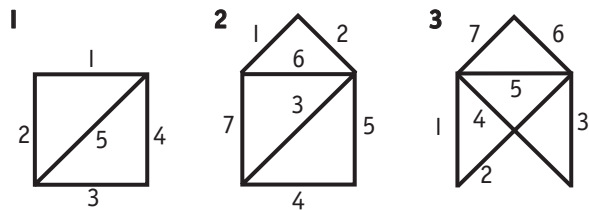
2 teacher check

Worksheet 3

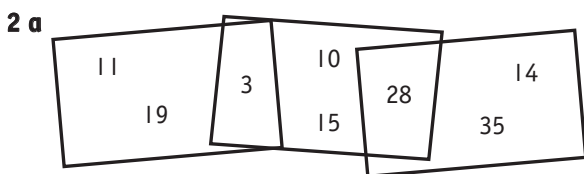
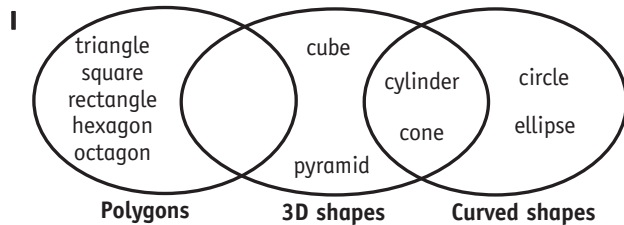
1 a teacher check timeline b false

2 a teacher check timeline b true

Worksheet 4



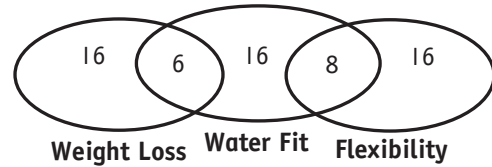
Worksheet 5



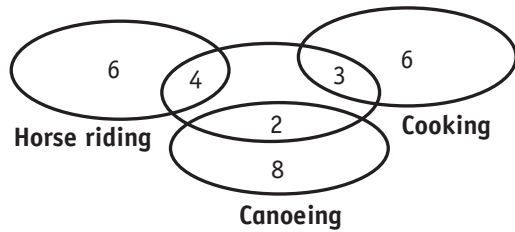
b 3, 28

Worksheet 6

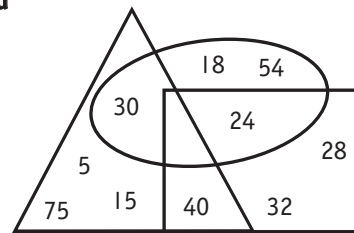
1 62



2 29



3 a



b 30 c 24

Worksheet 7

teacher check all diagrams

1 false 2 true 3 false (same) 4 true

Worksheet 8

1 4 oranges

2 0.9 m (90 cm)

3 £120

4 $\frac{1}{3}$ day = 8 hrs

Look for patterns

Worksheet 1

1 b

2 c

3 b

4 a

5 teacher check

Worksheet 2

- 1 a** 3, 6, 9, 12, 15, 18, 21, 24
b 14 000, 1 400, 140, 14, 1.4, 0.14, 0.014, 0.0014
c 3, 8, 18, 38, 78, 158, 318, 638
d 4, 7, 13, 25, 49, 97, 193, 385
e 2, 3, 5, 8, 13, 21, 34, 55
- 2** Sunday, Tuesday, Wednesday, Thursday, Saturday
- 3** January, February, March, April, September, October, November, December
- 4** 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37
- 5** 26, 27, 28, 30, 32, 33, 34, 35, 36, 38, 39
- 6** 12, 16, 20, 24, 28
- 7** 3, 5, 7
- 8** 22, 27, 32, 37, 42, 47, 52, 57
- 9** 3
- 10** 7

Worksheet 3

- 1 a** 13, 34, 82 **b** 49, 69, 97 **c** 46, 38.5, 26.5, 11.5

2 a

8	1	6
3	5	7
4	9	2

b

2	7	6
9	5	1
4	3	8

- 3 a** $3 \times \text{input} + 2$; 11, 4, 5, 23 **b** $4 \times \text{input} - 3$; 6, 29, 10
c $\text{input}^2 + 1$; 50, 8, 226, 20

Worksheet 4

- 1** 14
- 2** 45.2, 42.0, 40.4, 39.6, 39.2, 39, 38.9, 38.85
- 3** 84, 90, 95, 99, 102, 104, 103, 103
- 4** 403.5 m (400.5, 401, 401.5, 402, 402.5, 403, 403.5)

Worksheet 5

- 1 a** ABC 995, ABC 996, ABC 997, ABC 998, ABC 999, ABD 000
b DJ 96 AA, DJ 97 AA, DJ 98 AA, DJ 99 AA
c AY 9990, AY 9991, AY 9992, AY 9993, AY 9994, AY 9995, AY 9996, AY 9997, AY 9998, AY 9999, AZ 0000, AZ 0001
d TZ 998, TZ 999, UA 000, UA 001, UA 002
e 36 JK 49, 36 JL 49, 36 JM 49, 36 JN 49, 36 JO 49
- 2 a** D6, D8, E0 **b** Q8, R0, R2 **c** R9, S1, S3
d J2, J4, J6 **e** Xo, X2, X4 **f** Y7, Y9, Z1
- 3 a** add consecutive numbers
b add consecutive odd numbers
c consecutive numbers cubed

Worksheet 6

- 1** 15, 31, 63, 127, 255, 511, 1023

- 2** 44, 35, 27, 20, 14, 9, 5, 2, 0 (week 10)
- 3** -£5, -£4, -£5, -£4 etc.
- 4 a** 1, 0, repeated **b** 1, 3, 3, 3, 3 repeated **c** 1, 3, 2, 0, 1, 3, 2, 0, repeated **d** 1, 3, 1, 3, repeated **e** 1, 3, 0, 1, 3, 0, 1, 3, 0, repeated **f** 1, 3, 7, 7, 7, 7, 7, 7, 7, repeated

Worksheet 7

- 1 a** 8, 13, 17 **b** 9, 16, 31 **c** 14, 87, 235 **d** 18, 32
e $N \times 3 + 2$; 7, 10, 16, 46 **f** $N \div 2 + 1$; 1, 4, 8
g $N - 0.5$; 5.5, 10, 15.5 **h** $N \times 9$; 1, 47, 99
i $N \times 2 - 2$; 9, 14, 30 **j** $N + \text{consecutive odd numbers}$; 10, 12, 21
- 2 a** $N^2 - 1$ **b** $N \div 2$ **c** N^3 **d** $N \div 4$ **e** $N \times 3 + 1$

Worksheet 8

- 1** £150, £200, £250, £300, £350, £450, £600
- 2 a** £4 700, £4 600, £4 400, £4 000, £3 200, £1 600, nil
b Nov
- 3 a** £1405, £1310, £1215, £1120, £1025, £930, £740, £455
b £75
- 4** £692

Make a list

Worksheet 1

- 1** 202, 212, 222, 232, 242, 252, 262, 272, 282, 292
- 2** 9 009, 9 119, 9 229, 9 339, 9 449, 9 559, 9 669, 9 779, 9 889, 9 999
- 3** level, madam
- 4** 161, 262, 363, 464, 656, 666, 767, 868, 969
- 5** $20 - 1 - 02$, $20 - 2 - 02$, $20 - 3 - 02$, $20 - 4 - 02$, $20 - 5 - 02$, $20 - 6 - 02$, $20 - 7 - 02$, $20 - 8 - 02$, $20 - 9 - 02$, $20 - 11 - 02$
- 6** 404, 414, 424, 434, 454, 464, 474, 484, 494,
- 7** $121 + 464$, $131 + 454$, $141 + 444$, $151 + 434$, $161 + 424$, $171 + 414$, $181 + 404$, $212 + 373$, $222 + 363$, $232 + 353$, $242 + 343$, $252 + 333$, $262 + 323$, $272 + 313$, $282 + 303$
- 8** $999 - 272$, $989 - 262$, $979 - 252$, $969 - 242$, $959 - 232$, $949 - 222$, $939 - 212$, $929 - 202$, $898 - 171$, $888 - 161$, $878 - 151$, $868 - 141$, $858 - 131$, $848 - 121$, $838 - 111$, $828 - 101$

Worksheet 2

- 1** 5 years
2 8 years
3 4 years

Worksheet 3

- 1** £5, 50p; £5, 20p, 20p, 10p; £2, £2, £1, 50p; £2, £2, £1, 20p, 20p, 10p, £2, £1, £1, 50p, 50p, 20p, 20p, 10p.
2 £2, £2, 50p; £2, £1, £1, 50p; £1, £1, £1, £1, 50p; £1, £1, £1, 3 × 50p; £1, £1, 5 × 50p; £1, 7 × 50p; 9 × 50p.
3 5 weeks (£19 and £15)

Worksheet 4

- 1** 60
2 4 combinations; 3 red, 2 blue with – 1 y, 4 p; 2 y, 3 p; 3 y, 2 p; 4 y, 1 p
3 12

Worksheet 5

- 1** 6; **2** 6

3 **Player 1** **Player 2** **Umpire**

Guy	Fabia	Mario
Guy	Hong	Fabia
Guy	Mario	Hong
Fabia	Hong	Guy
Fabia	Mario	Hong
Hong	Mario	Guy

(other combinations are possible)

Worksheet 6

- 1** teacher check
2 teacher check

Worksheet 7

- 1** **a** no **b** 18
2 10

Worksheet 8

- 1** 18
2 I will be 17, mother 41, father 43
3 teacher check

Work backwards

Worksheet 1

- 1** 2
2 72
3 20
4 48
5 25

Worksheet 2

- 1** £600
2 £650
3 £1 300
4 £10

Worksheet 3

- 1** 12:40 pm; teacher check
2 1:35 pm; teacher check
3 a 1:50 pm **b** 15 min

Worksheet 4

- 1** top £29; skirt £35; belt £15; sandals £49; total £128
2 boots £65; top £45; shorts £35; socks £16; total £161
3 books £90; CDs £75; cards £12; toys £60; calendars £36; £300

Worksheet 5

- 1 a** Angels 20; Bizzies 10 **b** teacher check
2 ($\frac{3}{12} = 15$ hours) **a** Val 20; Joe 15; Fred 10
b teacher check
3 (15% = £450) 3J £600; 3S £900

Worksheet 6

- 1** **a** + 3 + 5 + 5 + 2 = 99; 99 – 2 – 5 – 5 – 3 = 84; 15
2 **a** + 2 + 2 + 4 + 1 – 1 = 90; 90 + 1 – 1 – 4 – 2 – 2 = 82; 82
3 a Voombahs 81 + 84 + 82 + 83 = 328;
 Jetskis 80 + 82 + 85 + 87 = 334
b Vs 83; Js 87

Worksheet 7

- 1 a** Shanghai £1 750; Wellington £875
b teacher check
2 a 38 hr **b** 171 km **c** teacher check

Worksheet 8

- 1 a** 185 km **b** £212.35
2 3
3 a 18 min **b** 14 min **c** 29 min

Trial and error

Worksheet 1

- 1** 1 $\frac{7}{8}$ cups pies; 2 $\frac{1}{8}$ cups cake
2 4 adults $\frac{1}{2}$ pie each; 4 children $\frac{1}{4}$ pie each
3 3 peaches, 6 kiwi fruit, 2 apricots, 12 strawberries, 2 bananas

Worksheet 2

- 1 BB 3 x 9, 4 x 8, 2 x 7; JJ 3 x 9, 4 x 8, 3 x 6;
FF 4 x 9, 5 x 7, 1 x 6
- 2 FF 65, JJ 75, BB 85
- 3 BB 31 + 37, FF 13 x 5, JJ 83 - 15
- 4 Jim Jets

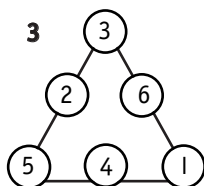
Worksheet 3

1

8	1	6
3	5	7
4	9	2

2

16	2	3	13
12	6	7	9
5	11	10	8
1	15	14	4



- 4 teacher check
(390 g on each side)

Worksheet 4

teacher check

Worksheet 5

- 1 Sam 80, Jack 45, Daniel 20, Henry 145
- 2 this week 124, last week 78, week before that 148
- 3 108, 160, 192

Worksheet 6

- 1 7 weeks
- 2 4 days
- 3 teacher check
- 4 K 89, J 88, T 81, S 87, F 85

Worksheet 7

- 1 12
- 2 7
- 3 17
- 4 teacher check

Worksheet 8

- 1 A 9, B 4, C 11, D 5
- 2 A 5, B 8, C 12, D 2, E 10, F 13

Logical reasoning

Worksheet 1

- 1 a regular quadrilaterals b irregular quadrilaterals c square
- 2 a divisible by 3 b divisible by 4 c 72
- 3 a square numbers b divisible by 8 c 256
- 4 a square numbers b triangular numbers c 36

Worksheet 2

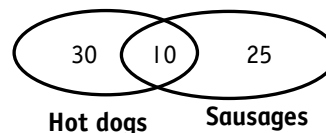
- 1 37 - others all even
- 2 circle - others have straight sides
- 3 35 - others are triangular numbers
- 4 35 - others are multiples of 3
- 5 8 - others are square numbers.
- 6 67 - others are composite numbers
- 7 $\frac{2}{5}$ - others can be expressed as twelfths
- 8 10% - others are fifths
- 9 125 - others are divisible by 4
- 10 d - others have 2 axes of symmetry

Worksheet 3

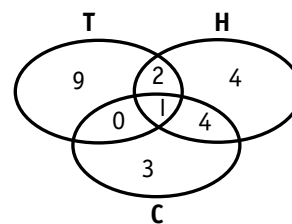
- 1 a T b F c T d T e F f F g T h T
- 2 a T b T c F d T e T f F g T h T
- 3 a T b T c T d F e T f F g F h T

Worksheet 4

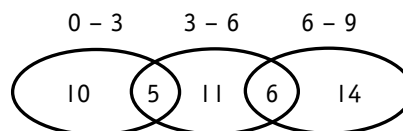
1 25



2 a 3 b 23



3 a 11 b 46



Worksheet 5

1 Blue

	Blue	Red	Green	Yellow
Ned	x	x	x	✓
Peter	x	x	✓	x
Barry	✓	x	x	x
Bernie	x	✓	x	x

2 Spud

	S	M	T	9	10	11
Jake	✓	x	x	x	x	✓
Spud	x	✓	x	x	✓	x
Tito	x	x	✓	✓	x	x

3 Goalie

Person	Position	Award
Fonzie	centre	M.I.
Jantzer	forward	B.G.
Danzer	goalie	B.

4 a Joe b Serge

Person	Food	Sport
Davy	pies	soccer
Joe	chips	cricket
Serge	fruit	rugby

Worksheet 6

- 1 a** AAAAAA
b AAAAAAAAAA
c AAAAAAAAAA
d AAAAAAAAAAAAAA
e AAAAAAAAAA
- 2 a** GGGGGG
b GGGGG
c GGGGGGGGGGGG

Worksheet 7

- 1 8** (RRB – B; R – BRB; – RBRB; BR – RB; BRBR – ; BRB – R; B – BRR; BB – RR)
- 2** teacher check

Worksheet 8

- 1** 2 bananas
- 2** teacher check
- 3** Maggie

	hat	dress	shoes	bag
Mag	x	x	✓	x
Man	x	x	x	✓
Mim	x	✓	x	x
Mol	✓	x	x	x

Open-ended problem solving

Worksheet 1
 teacher check

Worksheet 2
 teacher check

Worksheet 3
 teacher check

Worksheet 4
 Possible answers

- 1** 72: factors of 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, 6 dozen, 7 tens and 2 etc.
- 2** 84: 7 dozen, factors of 2, 3, 4, 6, 8, 12, 16, 21, 42, 8 tens and 4, 3 plus 9 squared, etc.
- 3** 96: 8 dozen, Factors of 2, 3, 4, 6, 8, 12, 16, 24, 32, 48, 4 less than 100, 10? – 2? etc.
- 4** 42: double 21, 3 times 14, 7 times 6, etc.

Worksheet 5
 teacher check

Worksheet 6
 teacher check

Worksheet 7
 teacher check

Worksheet 8
 teacher check