

Mathletics

Years 6 & 7

Problem Solving



Problem Solving Record Sheet

Name _____

Draw a diagram

Worksheet 1	
Worksheet 2	
Worksheet 3	
Worksheet 4	
Worksheet 5	
Worksheet 6	
Worksheet 7	
Worksheet 8	

Look for patterns

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Worksheet 8	

Make a list

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Work backwards

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Trial and error

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Logical reasoning

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Open-ended problem solving

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Answers

Draw a diagram

Worksheet 1

1 cheese + capsicum, cheese + mushrooms, cheese + celery;
cheese/ham + capsicums, 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

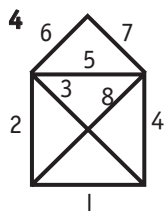
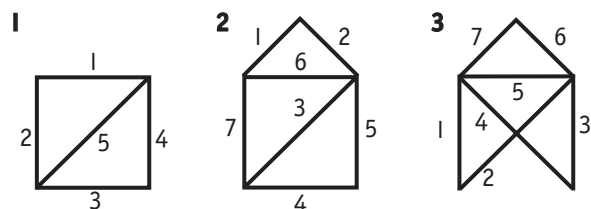
2 teacher check

Worksheet 3

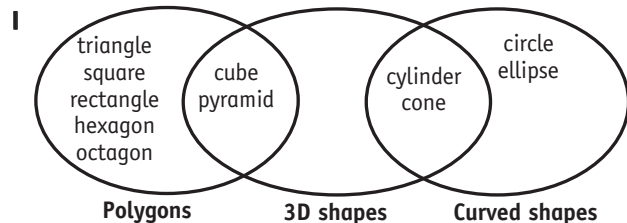
1 a teacher check timeline b false

2 a teacher check timeline b true

Worksheet 4

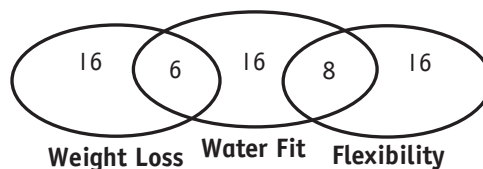


Worksheet 5

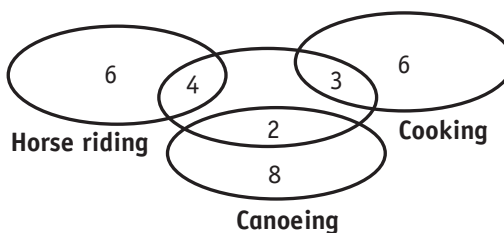


Worksheet 6

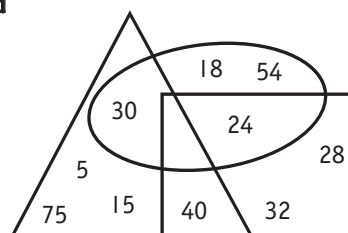
1 62



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

12	5	6
3	9	11
8	9	6

- 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, 33, 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, 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, 50c; \$5, 20c, 20c, 10c; \$2, \$2, \$1, 50c; \$2, \$2, \$1, 20c, 20c, 10c, \$2, \$1, \$1, 50c, 50c, 20c, 20c, 10c.
2 \$2, \$2, 50c; \$2, \$1, \$1, 50c; \$1, \$1, \$1, \$1, 50c; \$1, \$1, \$1, 3 x 50c; \$1, \$1, 5 x 50c; \$1, 7 x 50c; 9 x 50c.
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** $\blacktriangle + 3 + 5 + 5 + 2 = 99$; $99 - 2 - 5 - 5 - 3 = 84$; 15
2 $\blacktriangle + 2 + 2 + 4 + 1 - 1 = 90$; $90 + 1 - 1 - 4 - 2 - 2 = 82$; 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 3×9 , 4×8 , 2×7 ; JJ 3×9 , 4×8 , 3×6 ;
FF 4×9 , 5×7 , 1×6
2 FF 65, JJ 75, BB 85
3 BB $31 + 37$, FF 13×5 , JJ $83 - 15$
4 Jim Jets

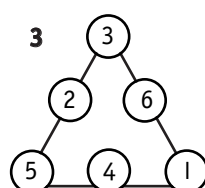
Worksheet 3

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

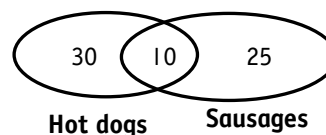
- 1 37 – others all even
2 circle – others have straight sides
3 35 – others are triangular numbers
4 35 – others are multiples of 3
5 8 – others are square numbers.
6 67 – others are composite numbers
7 $\frac{2}{5}$ – others can be expressed as twelfths
8 10% – others are fifths
9 125 – others are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

Worksheet 3

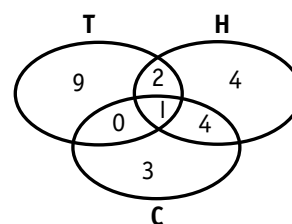
- 1 a T b F c T d T e F f F g T h T
2 a T b T c F d T e T f F g T h T
3 a T b T c T d F e T f F g F h T

Worksheet 4

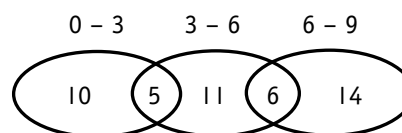
- 1 25



- 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	✓	✗	✗	✗	✗	✓
Spud	✗	✓	✗	✗	✓	✗
Tito	✗	✗	✓	✓	✗	✗

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	✗	✗	✓	✗
Man	✗	✗	✗	✓
Mim	✗	✓	✗	✗
Mol	✓	✗	✗	✗

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