1.3 Problem Solving Skills Pack: 1-hour Pack

NATIONAL CURRICULUM KS2 National Curriculum Mathematics - Problem Solving Skills Framework · Calculators not allowed · about 60 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 a and b are positive whole numbers. a + b = 18 and a x b is less than 54.

How many pairs (a, b) with a smaller than b satisfy both conditions?

Answer: ___

(3)

---

2 Matchsticks are used to make a row of triangles joined side by side. One triangle uses 3 sticks and each extra triangle added needs 2 more sticks.

How many sticks are needed for 10 triangles?

Answer: ___

(2)

---

3 Two whole numbers have a sum of 16 and a product of 55.

What are the two numbers? Write the smaller one first.

Answer: ___ and ___

(2)

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4 Isla and Quinn share some money in the ratio 6:8. The difference between their shares is £8.

How much money is shared altogether?

Answer: £___

(2)

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5 Hana eats 1/4 of a cake on Monday and 1/4 on Tuesday.

What fraction of the cake is left? Give your answer in its simplest form.

Answer: ___

(2)

---

6 Two whole numbers have a sum of 15 and a product of 36.

What are the two numbers? Write the smaller one first.

Answer: ___ and ___

(2)

---

7 Matchsticks are used to make a row of squares joined side by side. One square uses 4 sticks and each extra square added needs 3 more sticks.

How many sticks are needed for 5 squares?

Answer: ___

(2)

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8 In a class of 23 pupils, 12 like football, 7 like netball and 5 like both.

How many pupils like neither?

Answer: ___

(2)

---

9 Zara has 9,619 stickers. Zara is given 485 more and then gives away 1,898.

How many stickers does Zara have now?

Answer: ___

(2)

---

10 The sum of 4 consecutive numbers is 218.

What is the smallest of the 4 numbers?

Answer: ___

(2)

---

11 The sum of 3 consecutive odd numbers is 105.

What is the smallest of the 3 numbers?

Answer: ___

(2)

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12 Victor has 2 boxes with 1,722 stickers in each box and 3,496 loose stickers.

How many stickers does Victor have altogether?

Answer: ___

(2)

---

13 A lesson starts at 06:19 and ends at 07:37.

How many minutes does it take?

Answer: ___ minutes

(2)

---

14 A film starts at 09:35 and takes 4 hours 32 minutes.

What time does it finish? Write your answer as a 24-hour clock time.

Answer: ___

(1)

---

15 a and b are positive whole numbers. a + b = 15 and a x b is less than 45.

How many pairs (a, b) with a smaller than b satisfy both conditions?

Answer: ___

(3)

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16 A leisure centre is setting out chairs for a sports awards evening. Each row holds 16 chairs. 235 people are expected to attend. Work out the smallest number of rows of chairs needed so that everyone has a seat.

(3)

---

17 Daisy is 3 times as old as Victor. Together their ages add up to 28.

How old is Victor?

Answer: ___

(2)

---

18 In a class of 31 pupils, 18 like football, 16 like netball and 14 like both.

How many pupils like neither?

Answer: ___

(2)

---

19 Tom has 2,981 beads. Tom puts 101 aside and shares the rest equally between 5 friends.

How many beads does each friend get?

Answer: ___

(2)

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20 Use each of the digits 9, 8, 7, 1 once to make the largest possible 4-digit number.

Answer: ___

(2)

---

21 A train leaves Bristol at 08:53 and arrives in Cardiff at 09:41.

(a) A train leaves Bristol at 08:53 and arrives in Cardiff at 09:41. Work out how long the journey from Bristol to Cardiff takes. **(1)**

(b) The train waits at Cardiff for 6 minutes, then continues to Swansea, arriving at 10:29. Work out the total journey time, in minutes, from Bristol to Swansea. **(3)**

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22 A shop sells 3 crayons for 47p and 10 crayons for 104p.

Which pack is better value for money? Write the number of crayons in the pack.

Answer: ___

(2)

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Mark scheme · 1.3 Problem Solving Skills Pack: 1-hour Pack

A correct answer earns full marks unless the question asks for working, a method, proof or explanation.

Question 1

lists the pairs	M1
tests the product	M1
3 cao	A1

Answer: **3**

Question 2

9 extra shapes seen	M1
21 cao	A1

Answer: **21**

Question 3

tests pairs that add to the sum	M1
5 and 11 cao	A1

Answer: **5 and 11**

Question 4

2 parts = £8 so 1 part = £4 seen	M1
£56 cao	A1

Answer: **£56**

Question 5

2/4 eaten seen	M1
1/2 cao	A1

Answer: **1/2**

Question 6

tests pairs that add to the sum	M1
3 and 12 cao	A1

Answer: **3 and 12**

Question 7

4 extra shapes seen	M1
16 cao	A1

Answer: **16**

Question 8

12 + 7 - 5 = 14 seen	M1
9 cao	A1

Answer: **9**

Question 9

10,104 seen	M1
8,206 cao	A1

Answer: **8,206**

Question 10

uses the mean or tests numbers	M1
53 cao	A1

Answer: **53**

Question 11

uses the mean or tests numbers	M1
33 cao	A1

Answer: **33**

Question 12

2 x 1,722 = 3,444 seen	M1
6,940 cao	A1

Answer: **6,940**

Question 13

counts on to the next hour or minutes calculation	M1
78 minutes cao	A1

Answer: **78 minutes**

Question 14

14:07 cao	B1

Answer: **14:07**

Question 15

lists the pairs	M1
tests the product	M1
4 cao	A1

Answer: **4**

Question 16

235 / 16 = 14 remainder 11 (or 14 x 16 = 224 identified) oe	M1
recognises that the 11 people left over need an extra row, dependent on the previous method mark	dM1
15 cao	A1

Answer: **15 rows**

Question 17

4 equal parts seen	M1
7 cao	A1

Answer: **7**

Question 18

18 + 16 - 14 = 20 seen	M1
11 cao	A1

Answer: **11**

Question 19

2,880 seen	M1
576 cao	A1

Answer: **576**

Question 20

digits placed in value order	M1
9,871 cao	A1

Answer: **9,871**

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Question 21

(a) 48 minutes cao	**B1**
(a) Answer: **48 minutes**	
(b) finds the Cardiff departure time 09:41 + 6 = 09:47 oe	**M1**
(b) finds the Cardiff to Swansea time 09:47 to 10:29 = 42 minutes oe, or adds 48 + 6 + 42	**M1**
(b) 96 minutes oe 1 hour 36 minutes, cao	**A1**
(b) Answer: **96 minutes (1 hour 36 minutes)**	

Question 22

finds the cost of one in each pack	**M1**
10 cao	**A1**
Answer: **10**	

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