THE PERSE

SCHOOL

CAMBRIDGE

Year 7 (11+) Entrance Assessments

Sample Maths Paper 1

SOLUTIONS

1. Find the missing number:

| 1 | 9 |

X $\boxed{8}$ =   152

2. Calculate $\frac{5}{8}$ of 4000

$4000 \div 8 = 500$

$5 \times 500 = 2500$

Answer: __2500__

3. Calculate each of the following:
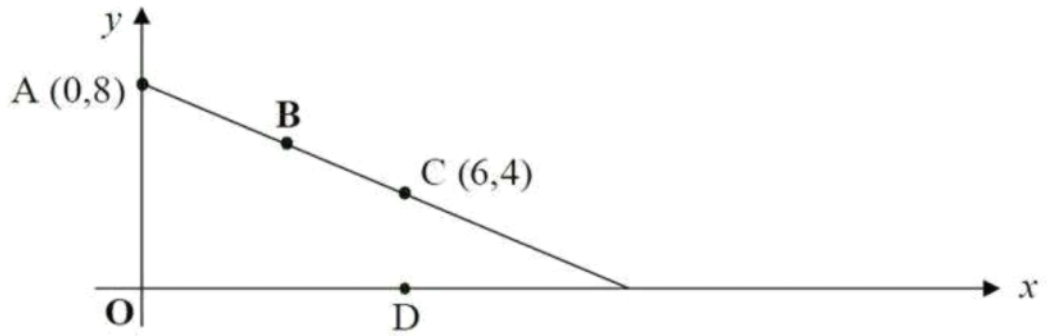
(a)   7921   +   846

Answer: __8767__

(b)   2031   -   1357

Answer: __674__

(c)   73   x   8

Answer: __584__

4. Here is a straight-line graph.

The points A, B and C are equally spaced.

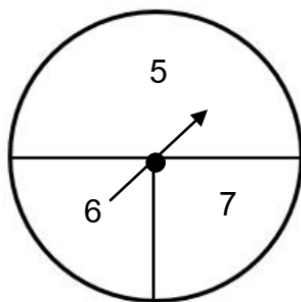What are the co-ordinates of the point B?

Answer: B (3 , 6)

Point D is directly below point C as shown.

What are the co-ordinates of the point D?

Answer: D (6 , 0)

5. What is the probability of scoring a 6 on this spinner?

Answer: $\frac{1}{4}$

6. Choose from this set of numbers

| 8 | 9 | 10 | 11 |
| 12 | 13 | 14 | 15 |

(i) a square number   Answer (i) : _____9_____

(ii) three multiples of 3.

Answer (ii) : _____9_____ , _____12_____ , _____15_____

(iii) three factors of 60.

Answer (iii) : _____10_____ , _____12_____ , _____15_____

7. Look carefully at this number pattern.

$1^2 + 3 = 4$

$2^2 + 5 = 9$

$3^2 + 7 = 16$

$4^2 + 9 = 25$

Write the next two lines of the pattern

_____$5^2 + 11 = 36$_____

_____$6^2 + 13 = 49$_____

8. Calculate $273 \div 7$

Answer: _____39_____

9. In Moscow at noon it is 4°C. By midnight the temperature has dropped by 10°C. What is the
    temperature at midnight?

$$-10 \begin{array}{c} -4 \\ 0 \\ -4 \\ -6 \end{array}$$
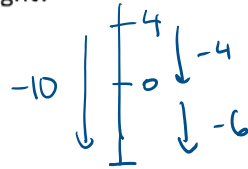
Answer: ___−6___ °C

10. For Ben's birthday he goes to the cinema. Tickets cost £3.85 for children and £5.50 for adults.

    In his party there are 4 children and 2 adults.

    (a) How much do the tickets cost?

$$4 \times 3.85 + 2 \times 5.50$$
$$15.40 + 11.00$$

Answer: £26.40

    (b) Ben's Mum hands the cashier two £20 notes for the tickets. How much change does she receive?

$$40 - 26.40$$

Answer: £13.60

    (c) The film starts at 15:55 and finishes at 5.35pm. How long does it last?

$$15:55 \text{ to } 17:35$$

Answer: 1 hr 40 mins

11. Ben wants to buy 17 small bottles of drink for a party. A shop sells them at: 15p for 1 bottle; 28p for two bottles; 60p for a pack of 5 bottles. What is the smallest amount of money he needs to spend? [Give your answer in £s]

$$15p \text{ for } 1 \rightarrow 15p/\text{bottle}$$
$$28p \text{ for } 2 \rightarrow 14p/\text{bottle}$$
$$60p \text{ for } 5 \rightarrow 12p/\text{bottle}$$

$$17 = 3 \times 5 + 1 \times 2$$
$$3 \times 60 + 1 \times 28$$
$$= 180 + 28$$
$$= 208$$

Answer: £ 2.08

12. This sequence of numbers goes up by 30 each time.

30, 60, 90, 120, 150, ……..

The sequence continues.

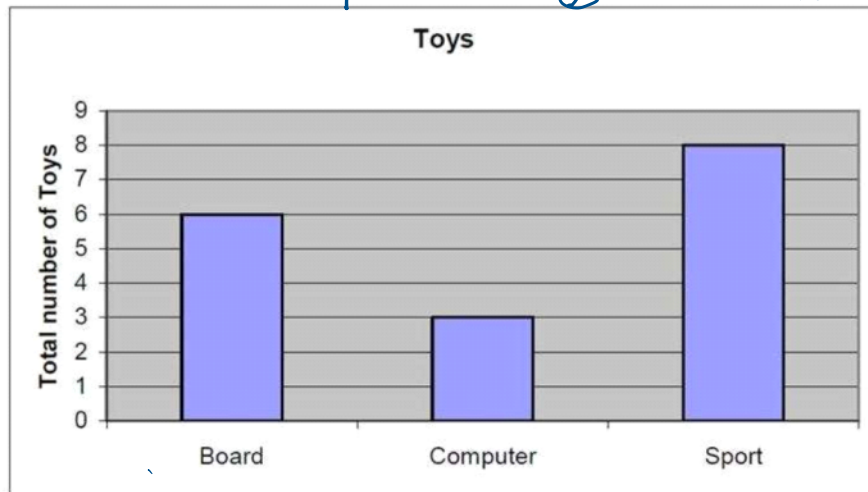Will the number 1330 be in the sequence?　　　Answer: No

Explain how you know:

$(1330 \div 30 = 133 \div 3 = 44 r 1)$ 1330 is not a multiple of 30.

13. Here is a table of toys owned by 6 children:

Child	Board games	Computer games	Sports equipment
Alan	1	3	2
Ben	3	0	3
Chris	0	2	0
David	2	1	1
Ed	1	0	0
Faizal	0	0	4

7   6   10

Toys

Total number of Toys

9
8
7
6
5
4
3
2
1
0

Board   Computer   Sport

missing: 1   3   2

Whose toys are not on the graph?

Answer: _Alan's_

14. The four numbers 8, 3, 9 and [ ] have an average of 6.

What number goes in the box?

Total = 6 × 4 = 24
8 + 3 + 9 = 20

Answer: _____4_____

15.
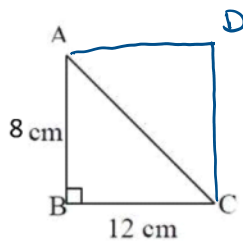
The diagram opposite (which is NOT drawn to scale) shows triangle ABC with angle B = 90°. AB = 8cm and BC =12cm.

(a) Complete the figure by drawing in two lines to make rectangle ABCD.

(b) What is the distance around (perimeter of) the rectangle?

2×8 + 2×12
16 + 24

Answer: _____40_____cm

(c) What is the area of triangle ABC?

rectangle = 8 × 12 = 96
½ of 96

Answer: _____48_____cm²

16. On the planet Zog, all numbers are written with the digits in reverse order. For example, forty-five is written as 54. Pluto, an inhabitant of Zog, was given the subtraction 729—26. If no mistakes were made, what answer did Pluto write down?

729 - 26 means 927 - 62 = 865

Answer: _____568_____

17. The **same** number if missing from all three boxes.

Write the same missing number in each box.

$\boxed{8}$ X $\boxed{8}$ X $\boxed{8}$ = 512

18 Work out the following

(a) $14\frac{2}{3} - 3\frac{5}{6}$ [Give your answer as a mixed number]

$14\frac{4}{6} - 3\frac{5}{6}$

$13\frac{10}{6} - 3\frac{5}{6}$

Answer (a): _____$10\frac{5}{6}$_____

(b) 57.8 x 0.1

Answer (b): _____5.78_____

19. What is the smallest whole number, above 120, which when divided by 53, leaves a remainder of two.

multiples of 53:   53 , 106 , 159
                                    ↓
                                 add 2

Answer: ___161___

20. Duncan and Jess have created a mathematical rule where 'the block' (■) of two numbers is the remainder when their sum is divided by 7.

For example,   3■8 = 4   because 3 + 8 = 11 and the remainder when you divide 11 by 7 is 4.

and   3■2 = 5   because 3 + 2 = 5 and the remainder when you divide 5 by 7 is 5.

a. Calculate   11■9

$11 + 9 = 20$

$20 \div 7 = 2 \, r \, 6$

Answer: __6__

b. Calculate   1■11■111

$1 + 11 + 111 = 123$

$123 \div 7 = 17 \, r. \, 4$

Answer: __4__

c. Find the least possible positive whole number a, **greater than 1**, such that $a■a = 2$

$a + a$ is 2 more than a multiple of 7

$a + a = 2, 16$

$a=1$ $a=8$
  $\times$ $\checkmark$

Answer: __8__

d. Find the least possible positive whole number value b such that   22■b■50 = 1

$22 + b + 50 = 72 + b$

1 more than a multiple of 7 : 78

Answer: __6__

Now check through your work carefully!