THE PERSE SCHOOL
CAMBRIDGE

Year 7 (11+) Entrance Assessments

Sample Maths Paper 1

SOLUTIONS

1. Find the missing number:

1	9	X	8	=	152

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

4000 ÷ 8 = 500

5 × 500 = 2500

Answer: 2500

3. Calculate each of the following:

(a) 7921 + 846

Answer: 8767

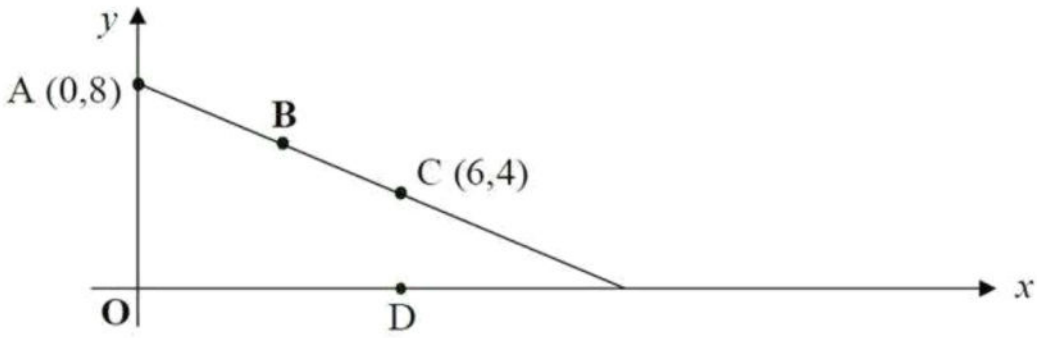
(b) 2031 - 1357

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?

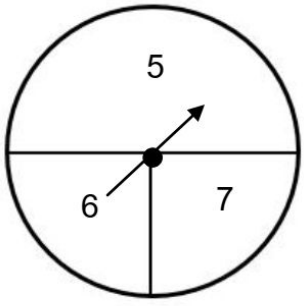
Answer: B (3, 6)

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

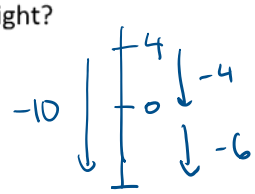
$5^2 + 11 = 36$

$6^2 + 13 = 49$

8. Calculate 273 ÷ 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?



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 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 for 1 → 15p/bottle
28p for 2 → 14p/bottle
60p for 5 → 12p/bottle

$17 = 3\times5 + 1\times2$
$3\times60 + 1\times28$
$= 180 + 28$
$= 208$

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

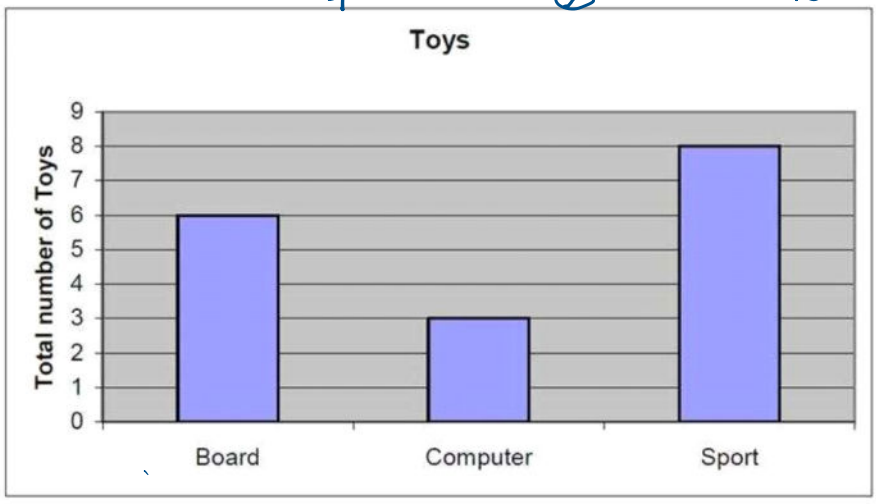
Explain how you know:

(1330 ÷ 30 = 133 ÷ 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



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.

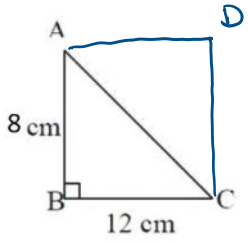
What number goes in the box?

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 cm^2

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.

8	X	8	X	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 ÷ 7 = 2 r 6

Answer: 6

b. Calculate 1■11■111

1+11+111 = 123

123 ÷ 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 ✓

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!