



**THE PERSE**  
**SCHOOL**  
CAMBRIDGE

Year 7 (11+) Entrance Assessments

Sample Maths Paper 1

SOLUTIONS

1. Find the missing number:

1	9
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 × 

8
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 = 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

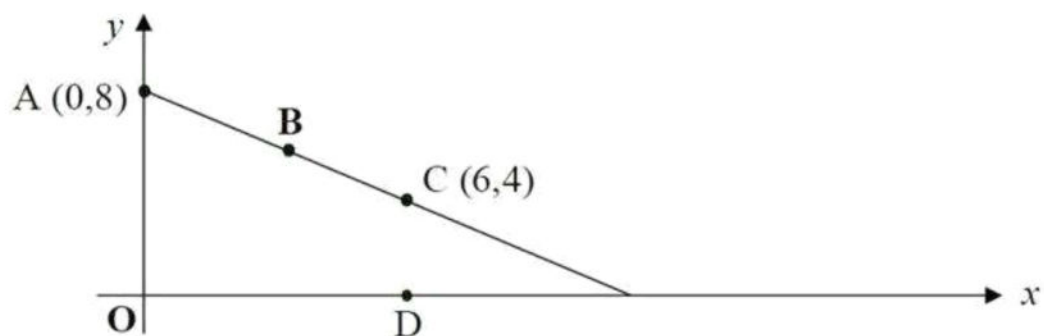
(b)  $2031 - 1357$

Answer: 674

(c)  $73 \times 8$

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?

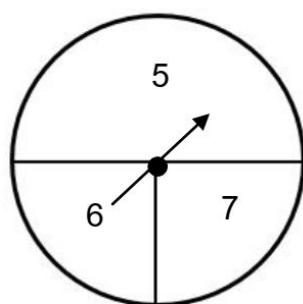
Answer: B ( 3 , 6 )

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.

$$1^2 + 3 = 4$$

$$2^2 + 5 = 9$$

$$3^2 + 7 = 16$$

$$4^2 + 9 = 25$$

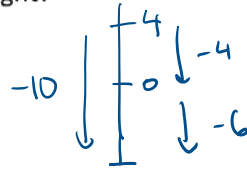
Write the next two lines of the pattern

$$\begin{array}{l} \underline{5^2 + 11 = 36} \\ \underline{6^2 + 13 = 49} \end{array}$$

8. Calculate  $273 \div 7$

Answer: 39

9. In Moscow at noon it is  $4^{\circ}\text{C}$ . By midnight the temperature has dropped by  $10^{\circ}\text{C}$ . What is the temperature at midnight?



Answer: -6  $^{\circ}\text{C}$

10. For Ben's birthday he goes to the cinema. Tickets cost  $\pounds 3.85$  for children and  $\pounds 5.50$  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:  $\pounds 26.40$

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

$$40 - 26.40$$

Answer:  $\pounds 13.60$

- (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]

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

$$\begin{aligned} 17 &= 3 \times 5 + 1 \times 2 \\ &= 3 \times 60 + 1 \times 28 \\ &= 180 + 28 \\ &= 208 \end{aligned}$$

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?

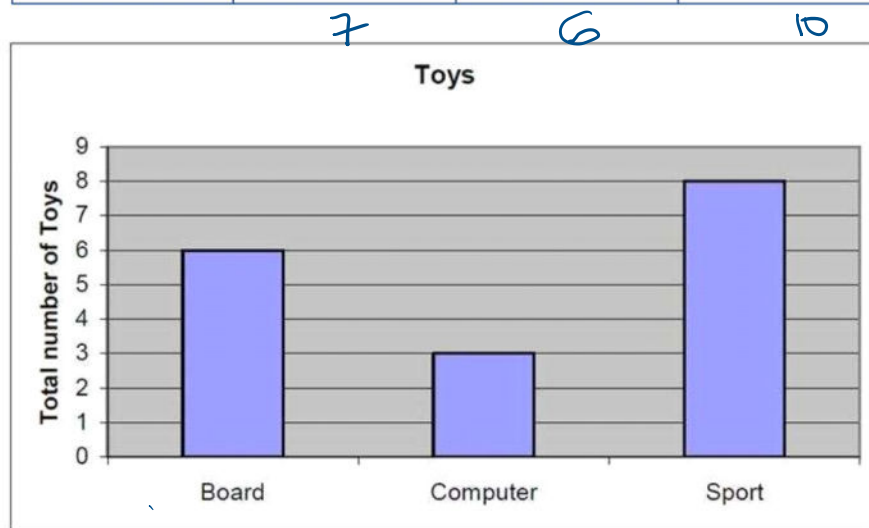
Answer: No

Explain how you know:

$(1330 \div 30 = 133 \div 3 = 44 \text{ r } 1)$  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



Whose toys are not on the graph?

Answer: Alan's

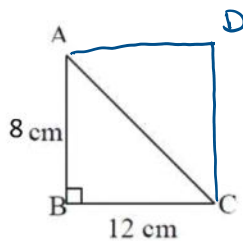
14. The four numbers 8, 3, 9 and  have an average of 6.

What number goes in the box?

$$\begin{aligned}\text{Total} &= 6 \times 4 = 24 \\ 8 + 3 + 9 &= 20\end{aligned}$$

Answer: 4

15.



The diagram opposite (which is NOT drawn to scale) shows triangle ABC with angle B =  $90^\circ$ . 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?

$$\begin{aligned}2 \times 8 &+ 2 \times 12 \\ 16 &+ 24\end{aligned}$$

Answer: 40 cm

- (c) What is the area of triangle ABC?

$$\begin{aligned}\text{rectangle} &= 8 \times 12 = 96 \\ \frac{1}{2} \text{ of } 96\end{aligned}$$

Answer: 48 cm<sup>2</sup>



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?

$$729 - 26 \text{ means } 927 - 62 = 865$$

Answer: 568

17. The same number is missing from all three boxes.

Write the same missing number in each box.

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

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)  $57.8 \times 0.1$

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' ( $\blacksquare$ ) of two numbers is the remainder when their sum is divided by 7.

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

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

- a. Calculate  $11 \blacksquare 9$

$$11 + 9 = 20$$

$$20 \div 7 = 2 \text{ r } 6$$

Answer: 6

- b. Calculate  $1 \blacksquare 11 \blacksquare 111$

$$1 + 11 + 111 = 123$$

$$123 \div 7 = 17 \text{ r } 4$$

Answer: 4

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

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

$$a + a = 2, 16$$

$$\begin{array}{cc} a=1 & a=8 \\ \times & \checkmark \end{array}$$

Answer: 8

- d. Find the least possible positive whole number value  $b$  such that  $22 \blacksquare b \blacksquare 50 = 1$

$$22 + b + 50 = 72 + b$$

1 more than a multiple of 7 : 78

Answer: 6

**Now check through your work carefully!**