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12 **What is 66 $\frac{2}{3}$% of the smallest 4-digit number that can be divided by 3?**

A 665 **B** 667 **C** 668 **D** 608 **E** 720

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13 At a bakery, there are x chocolate cakes, y vanilla cakes, and z strawberry cakes. (x, y and z stand for numbers)

Each chocolate cake is divided into 8 slices, each vanilla cake is divided into 5 slices, and each strawberry cake is divided into 10 slices. I eat three-quarters of the chocolate cake slices and two-fifths of the strawberry cake slices.

What is an algebraic expression for the total number of cake slices left in the bakery?

A 2x + 5y + 6z

B 4x + y + $\frac{12}{5}$z

C 6x + 5y + 6z

D 2x + 5y + 3z

E 2x + 5y + 5z

[illegible]

SAMPLE

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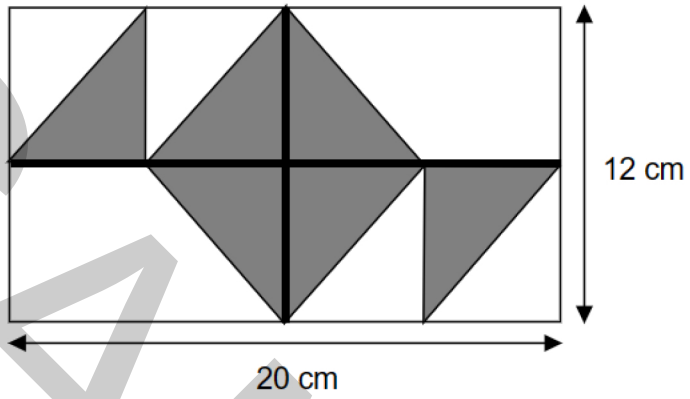
18 The rectangle below measures 20cm by 12cm.
Each of the bold lines divides the rectangle in half.
The shaded triangles are all identical.

Find the total area of all the shaded triangles. [Diagram is not drawn to scale]



A 80cm^2 **B** 90cm^2 **C** 100cm^2 **D** 84cm^2 **E** 120cm^2

[redacted]

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20 Charlie borrowed a book from the library and found interesting facts on page 208.

How many digits were there in total in the page numbers from 1 to 208?

A 510 **B** 515 **C** 511 **D** 516 **E** 513

END OF TEST 1

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SAMPLE

11+ MATHS DIFFICULT (MULTIPLE CHOICE) PACK 2D ANSWER SHEETS

Please mark boxes with a thin horizontal line like this ▭.

Test 1

1	2	3	4	5	6	7	8	9
24m ▭	$\frac{3}{25}$ ▭	A ▭	14cm ▭	7 and 8 ▭	20 ▭	A ▭	£41 ▭	16cm ▭
60m ▭	$\frac{1}{10}$ ▭	B ▭	12cm ▭	8 and 9 ▭	12 ▭	B ▭	£40 ▭	18cm ▭
80m ▭	$\frac{1}{20}$ ▭	C ▭	7cm ▭	9 and 10 ▭	24 ▭	C ▭	£39.50 ▭	20cm ▭
72m ▭	$\frac{3}{20}$ ▭	D ▭	10cm ▭	10 and 11 ▭	18 ▭	D ▭	£38 ▭	12cm ▭
36m ▭	$\frac{7}{20}$ ▭	E ▭	8cm ▭	6 and 7 ▭	9 ▭	E ▭	£39.90 ▭	8cm ▭

10	11	12	13	14	15	16	17
Monday ▭	600mm ▭	665 ▭	$2x + 5y + 6z$ ▭	28 ▭	5 ▭	3 : 4 ▭	80 ▭
Tuesday ▭	9.6m ▭	667 ▭	$4x + y + \frac{12}{5}z$ ▭	14 ▭	4 ▭	9 : 16 ▭	108 ▭
Wednesday ▭	0.06m ▭	668 ▭	$6x + 5y + 6z$ ▭	6 ▭	7 ▭	64 : 125 ▭	78 ▭
Thursday ▭	72cm ▭	608 ▭	$2x + 5y + 3z$ ▭	36 ▭	6 ▭	1 : 2 ▭	60 ▭
Friday ▭	9600cm ▭	720 ▭	$2x + 5y + 5z$ ▭	20 ▭	8 ▭	60 : 127 ▭	96 ▭

18	19	20
$80cm^2$ ▭	10 ▭	510 ▭
$90cm^2$ ▭	6 ▭	515 ▭
$100cm^2$ ▭	8 ▭	511 ▭
$84cm^2$ ▭	9 ▭	516 ▭
$120cm^2$ ▭	15 ▭	513 ▭

SAMPLE

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11+ Maths Difficult (Multiple Choice) Pack 2D Answer Guide:

Test 1

1. B

Step 1: Area of a triangle = $\frac{1}{2}$ x base x height

180 = $\frac{1}{2}$ x base x height

base x height = 180 x 2 = 360

Step 2: The height is 2m less than the base. So, we need to find two numbers with a difference of 2 that multiply together to make 360.

Use times tables knowledge and/or trial and error, e.g.:

Since 9 x 4 = 36, 9 x 40 = 360. We need to find two factors of 360 that are closer together than 9 and 40.

Since 18 x 2 = 36, we know that 18 x 20 = 360. There is a difference of 2 between 18 and 20.

Step 3: Therefore, height = 18m and base = 20m

Step 4: Since the triangle is equilateral, all the sides are the same length.

Therefore, perimeter = 20 + 20 + 20 = 60m

2. D

Step 1: Convert the probability from a decimal to a fraction:

Probability of plucking a lily = 0.35 = $\frac{35}{100}$ = $\frac{7}{20}$

Step 2: Hence, $\frac{7}{20}$ of the total number of flowers in the garden = 28

To simplify, divide both sides by 7, so $\frac{1}{20}$ of the total flowers = 4

Step 3: Total number of flowers = $\frac{20}{20}$ = $\frac{1}{20}$ of total x 20 = 4 x 20 = 80

Step 4: Number of tulips = 80 – 40 – 28 = 12

Step 5: Probability of plucking a tulip = $\frac{12}{80}$ = $\frac{3}{20}$

3. D

Go through all the options one by one:

Step 1: A: False. 3 + 6 + 1 = 10, which is not a multiple of 3, so 361 is not a multiple of 3.

Step 2: B: False. The third multiple of 18 is 54, which is not a multiple of 12.

Step 3: C: False. 1 and 3 are factors of 96, and are not multiples of 2.

Step 4: D: True. 7, 14 and 16 are factors of 112 (7 x 16 = 112; 14 x 8 = 112).

Step 5: E: False. 97 is the only prime number between 90 and 100.

SAMPLE

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