

11PlusDIY: MA-ST-002

Mathematics Mock Exam

INSTRUCTIONS TO CANDIDATES

- Write your name, exam date, exam name and exam centre in the spaces provided on the answer booklet provided. Please write clearly and in capital letters.
- **Do not write on this question booklet, use the answer booklet provided.**
- Use black ink
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Place an X in your choice of answer. Only choose one.
- If you make a mistake. Draw a line clearly through the incorrect answer.

A	
B	X
C	
D	
E	

Correct

A	
B	X
C	
D	X
E	

Correct

A	X
B	X
C	✓
D	X
E	X

Incorrect

A	X
B	
C	
D	X
E	

Correct if
 two answers
 are required

A	
B	
C	
D	X
E	

Incorrect



11PLUSDIY-MA-ST-002

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1	Look at the fraction below and fill in the missing number. $\frac{2}{15} + \frac{3}{7} = \frac{[?]}{105}$
2	Look at the fraction below and fill in the missing number. $\frac{7}{12} - \frac{3}{20} = \frac{13}{[?]}$
3	Look at the fraction below and fill in the missing number. $\frac{8}{18} \times \frac{5}{10} = \frac{[?]}{9}$
4	Look at the fraction below and fill in the missing number. $\frac{8}{11} \div \frac{1}{16} = \frac{[?]}{11}$
5	Which of the following is NOT a factor of 126 ? [5, 42, 21, 63, 3]
6	What is the Lowest Common Multiple (LCM) of 5, 2 and 18
7	What is the Highest Common Factor (HCF) of 70, 35 and 10
8	Add Forty Nine Thousand, Nine Hundred and Ninety One with Fifty Three Thousand, Four Hundred and Eighty Two
9	Multiply Eighty Six with Four Hundred and Thirty
10	Subtract Five Thousand, Three Hundred and Thirteen from Seventy Eight Thousand, Two Hundred and Ninety Nine
11	Divide Four Thousand, Five Hundred and Ninety Six with Twelve
12	What is the Place Value of Two in 5958328?

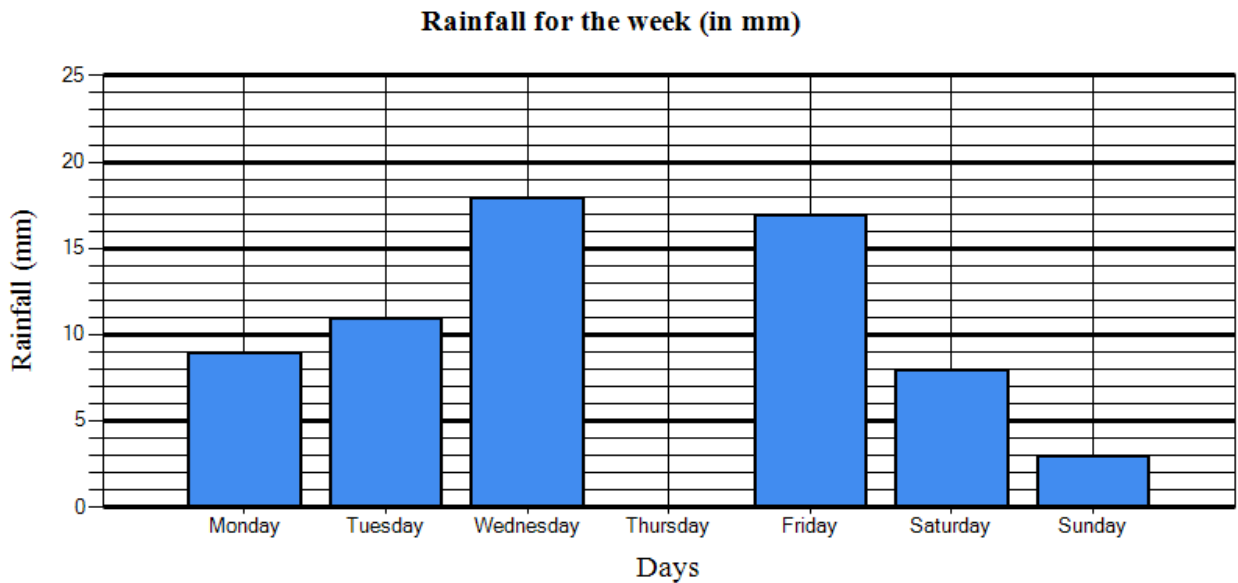


13	Select TWO prime numbers from the following options. [3, 51, 50, 74, 60, 83]
14	Select TWO odd numbers from the following options. [252, 6138, 2335, 5558, 7932, 4953]
15	Select TWO square or cube numbers from the following options. [138, 962, 424, 441, 100, 110]
16	Calculate the following: $88 + (46 \times 33)$
17	Write Seven Million, Seven Hundred and Seventy Four Thousand, Four Hundred and Seventy Seven in numbers.
18	In the number machine shown below if $X = 38$ and $Y = 166$ then what number was put into the machine to start with? <pre>graph LR; A[?] --> B[Multiply by X]; B --> C[Add Y]; C --> D[4384]</pre>
19	Round 17.1275 to 3 place of decimals.
20	Add 920.56 and 826.66
21	Subtract 642.631 and 52.46
22	Multiply 66.6 and 12.44
23	Divide 74.7 by 16.6

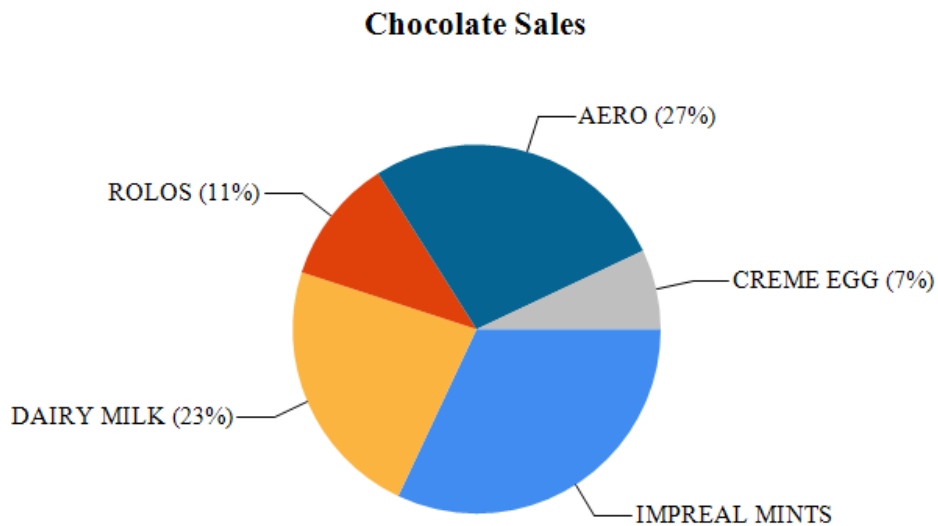


24 Which of the following decimals is the LARGEST?
[13.8, 60.84, 59.97, 38.15, 18.4]

25 The chart below shows the rainfall recorded during the week. What was the total rainfall recorded during the week?



26 The pie chart shows the proportions of different chocolates sold from a vending machine in one day. There were 184 DAIRY MILK sold. How many IMPREAL MINTS were sold?

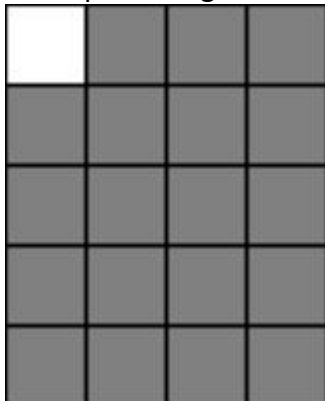


27 Represent $99/400$ as a percentage

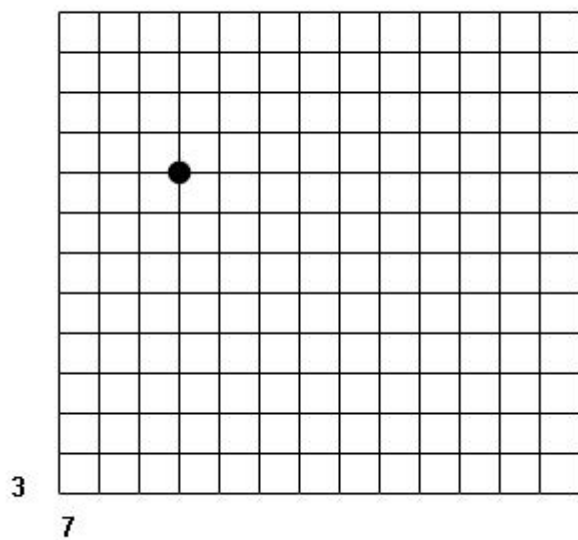


28 Reduce the fraction : $792/810$

29 What percentage of the figure below is shaded?



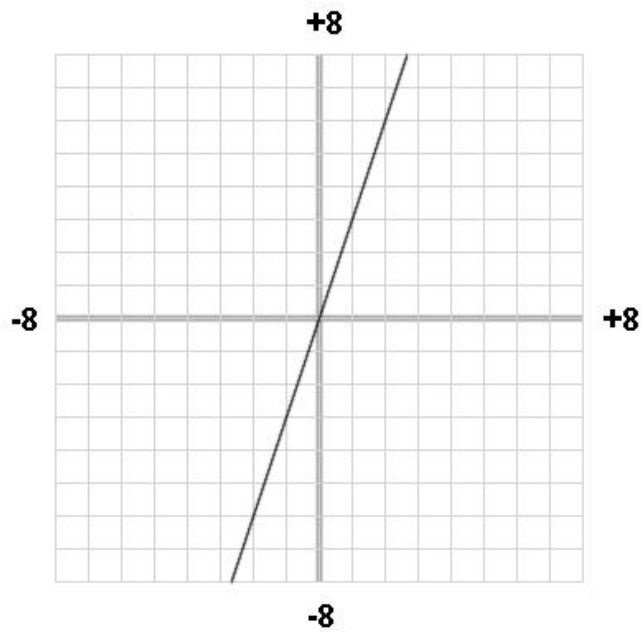
30 What will the co-ordinates of the marked point on the grid if it moves to DOWN by 4?





31

Look at the line plotted on the graph below. What relationship does this line represent?



32

Which net below would make a cube where the two shaded sides adjacent to each other?

A

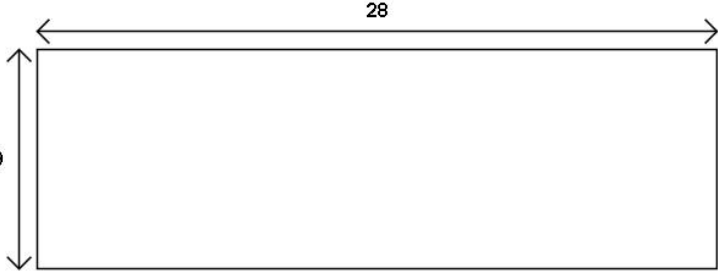
B

C

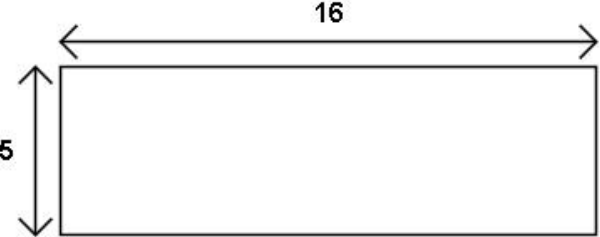
D



33 Look at the shape below. The height and width of the shape are as shown in the figure in CM. If the width of the shape is HALVED and the height of the shape is DOUBLED then what is the AREA of the new shape in CM Square?



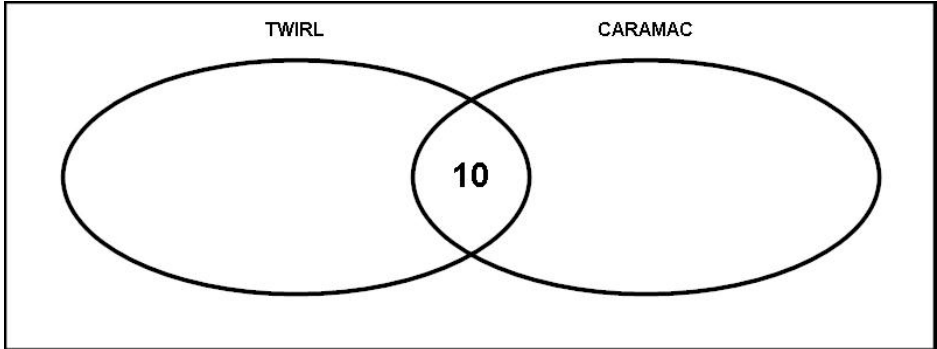
34 Look at the shape below. The height and width of the shape are as shown in the figure in CM. If the width of the shape is HALVED and the height of the shape is DOUBLED then what is the PERIMETER of the new shape in CM?



35 A Builder used SQUARE tiles to cover a rectangular surface. Each side of the square tile was 10 cm and he used 495 tiles to cover the surface. There were 33 tiles along one of the sides of the surface. What was the AREA of the surface covered by the tiles?

36 A Builder used SQUARE tiles to cover a rectangular surface. Each side of the square tile was 10 cm and he used 704 tiles to cover the surface. There were 22 tiles along one of the sides of the surface. What was the PERIMETER of the surface covered by the tiles?

37 Look at the Venn diagram below. It shows how many children in Mr PRATT's class like TWIRL, CARAMAC or both. 9 children like neither. There are 32 children in the class. 17 children like TWIRL and 16 like CARAMAC How many children in the class do not like CARAMAC?





38	<p>The table below shows the departure times of a bus from various stops on its route. The first bus departs WENDRON at 07:55.</p> <table border="1"><tr><td>WENDRON</td><td>07:55</td><td>?</td></tr><tr><td>PURLEIGH</td><td>08:15</td><td>?</td></tr><tr><td>PEARTREE</td><td>08:30</td><td>12:20</td></tr><tr><td>NORMANTON</td><td>08:40</td><td>?</td></tr><tr><td>WHITNASH</td><td>08:55</td><td>?</td></tr></table> <p>If the next bus on the same route departs PEARTREE at 12:20 then what time does it arrive at WHITNASH?</p>	WENDRON	07:55	?	PURLEIGH	08:15	?	PEARTREE	08:30	12:20	NORMANTON	08:40	?	WHITNASH	08:55	?
WENDRON	07:55	?														
PURLEIGH	08:15	?														
PEARTREE	08:30	12:20														
NORMANTON	08:40	?														
WHITNASH	08:55	?														
39	<p>MADDISON is baking a 3-Tiered Cake. The recipe requires her to mix SUGAR and CREAM in the ratio 14:15. If MADDISON uses 210 gms of SUGAR then how much of CREAM should she put in the 3-Tiered Cake?</p>															
40	<p>The table below shows the prices for chocolates at a shop.</p> <table border="1"><tr><td>JELLYS</td><td>41 pence</td></tr><tr><td>CREME EGG</td><td>41 pence</td></tr><tr><td>TURKISH DELIGHT</td><td>37 pence</td></tr><tr><td>MINT AERO</td><td>37 pence</td></tr><tr><td>TWIRL</td><td>69 pence</td></tr></table> <p>FRANCESCA has £6.00 to do the shopping. If FRANCESCA buys 4 TWIRL and 3 CREME EGG then how much money is FRANCESCA left with?</p>	JELLYS	41 pence	CREME EGG	41 pence	TURKISH DELIGHT	37 pence	MINT AERO	37 pence	TWIRL	69 pence					
JELLYS	41 pence															
CREME EGG	41 pence															
TURKISH DELIGHT	37 pence															
MINT AERO	37 pence															
TWIRL	69 pence															
41	<p>The cost of Chocolate Cream Roll displayed in a bakery is £2.22 for a 150 gram slice. What is the cost of the full Chocolate Cream Roll if it weighs 1.65 kilos?</p>															
42	<p>The cost of one IMPREAL MINTS bar is £0.61. If you have £5.20 and you buy the maximum number of IMPREAL MINTS bars possible with this amount then how much change will you be left with?</p>															
43	<p>At NICOLE's school there are 275 students. 32% like golf. How many students do not like golf?</p>															
44	<p>While on a holiday to Pakistan ALICIA purchased a toy for 22 Pakistan Rupee. The exchange rate is £1 = 140.51 Pakistan Rupee. What is the cost of the toy in UK pounds?</p>															
45	<p>SOFIA's grandma is 6 times as old as SOFIA will be in 1 years' time. If grandma is 84 years old then how old is SOFIA?</p>															



46 ESME, ALISHA and EVELYN are each given twelve TERRY'S CHOCOLATE from a bag and there are seven left over. How many TERRY'S CHOCOLATE were originally in the bag?

47 RUBY, MARYAM, ERIN and FLORENCE are all members of the school 4 x 400 meters relay team. Their individual timings (in minutes and seconds) in a 400 meters run are 01:40, 01:25, 01:10 and 01:35 in that order. Because of the practice they are doing the team is expected to better their collective relay race time by 10 seconds. What is the best time the team can hope for in the competition?

The table below shows the temperatures recorded in cities around the world.

48	Rwanda - Kigali	14 deg C
	Morocco - Rabat	10 deg C
	Zambia - Lusaka	11 deg C
	Ukraine - Kyiv	-8 deg C
	France - Paris	27 deg C
	Samoa - Apia	-5 deg C
	Spain - Madrid	18 deg C
	Canada - Ottawa	6 deg C

Which city was the hottest?

49 Four cars take part in a long distance road race. The total distance to be covered is 225 Kilometres. The average speeds of the cars are shown in the table below in Kilometres per hour.

Car A	180 kmph
Car B	144 kmph
Car C	84 kmph
Car D	96 kmph

What distance has the slowest car in the race covered when the fastest car crosses the finish line?

50 The names of students in a class are listed below. If a student was selected from the list at random then what is the probability that their name **STARTS-WITH 'S'**?
(ELEANOR, EVELYN, LOLA, ISABEL, CHARLOTTE, SARAH, LAUREN, LAYLA, MEGAN, SOPHIA, ALICIA, SIENNA, SKYE, POPPY, LEXI)

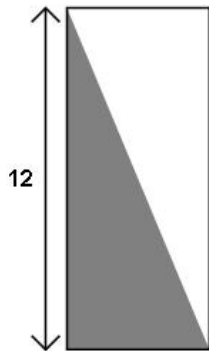
51 Which of the following fractions is the LARGEST?

$$\left[\frac{31}{25}, \frac{21}{20}, \frac{1}{2}, \frac{9}{20} \right]$$



Look at the shape below. The height of the rectangle is as shown in centi meters (CM). If the perimeter of the rectangle is 34 CM, then what is the area of the shaded triangle in Square CM?

52



53

If one of the angles of a triangle is 20 degrees, and the second and is twice of the first angle, then how much is the third angle in degrees?

54

$$8x + 17y = 9z$$

If $x=13$ and $y=5$ then what is the value of z ?

55

A map is drawn to the scale 6:11000. If the distance between two points on the map is 54 cm then what is the real distance?

56

A bus with 52 EMPTY seats starts from Chaucer. When the bus reaches Henleaze, 9 passengers get on the bus. At the next stop of Swanscombe, 3 passengers get off and 40 get on the bus. How many total passengers are on the bus when the bus departs Swanscombe?

57

The tally chart below shows the chocolate preferred by students in a school. Each symbol represents 20 students ($\$ = 20$ students).

BUTTONS	\$
MOW WOAMS	\$ \$ \$ \$ \$ \$ \$ \$
CARAMAC	\$ \$ \$
SOFT MINTS	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$
MINT AERO	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$
GALAXY CARAMEL	\$ \$ \$ \$ \$ \$
ROLOS	\$ \$ \$ \$

How many students like CARAMAC?

58

DAIRY MILK are packed in boxes of 160. How many boxes will you need to pack 688 DAIRY MILK?



59

The table below shows the total weight of each type of cake and desserts being sold in a bakery.

Banoffee Pie	1.064 Kgs
3-Tiered Cake	760 gms
Lemon Cake	1.096 Kgs
Fairy cake	1860 gms
Dutch Apple Pie	1036 gms
Vanilla slice	1102 gms

What is the total weight of Vanilla slice and 3-Tiered Cake available for sale?

60

The table below shows the number of drink cans sold from a vending machine on each day of the week.

Monday	16
Tuesday	9
Wednesday	17
Thursday	3
Friday	3
Saturday	?
Sunday	3

If the average sale per day was 9, then how many cans were sold on Saturday?



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Q1:		Q2:		Q3:		Q4:	
24		11		6		33	
20		1		1		106	
48		30		5		128	
59		2		2		13	
Q5:		Q6:		Q7:		Q8:	
5		62		3		103451	
42		28		13		103473	
21		78		5		103521	
63		90		9		103453	
3							
Q9:		Q10:		Q11:		Q12:	
36999		72966		390		Tens	
36948		72986		384		Hundreds	
36980		72979		377		Ten-Thousands	
36946		72946		383		Million	
						Ten-Million	
Q13:		Q14:		Q15:		Q16:	
3		252		138		1606	
51		6138		962		196	
50		2335		424		1514	
74		5558		441		1077	
60		7932		100			
83		4953		110			
Q17:		Q18:		Q19:		Q20:	
7774576		112		17.1		1747.37	
7774477		117		17.1275		1747.92	
7774436		111		17.13		1747.22	
7774500		105		17.128		1747.62	
Q21:		Q22:		Q23:		Q24:	
590.569		828.504		5.3268		60.84	
591.071		829.204		5.2		59.97	
590.171		829.104		5.0537		13.8	
590.4772		828.604		4.5		38.15	
						18.4	



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Q25:		Q26:		Q27:		Q28:	
66		261		24.75%		42/46	
70		264		25.63%		44/45	
65		262		23.69%		47/42	
63		256		23.74%		45/40	
Q29:		Q30:		Q31:		Q32:	
95.2%		(10,7)		$-x = 2y$		A	
94.25%		(17,12)		$3x = y$		B	
94.60%		(13,7)		$x = 4y$		C	
95.00%		(18,13)		$-x = y$		D	
Q33:		Q34:		Q35:		Q36:	
256		38		13.29 sq-cm		24.82 m	
252		37		4.95 sq-m		10.8 cm	
253		36		10.72 sq-m		19.40 cm	
251		34		4.95 sq-cm		10.8 m	
Q37:		Q38:		Q39:		Q40:	
6		12:45		31 gms		£0.93	
7		11:40		225 gms		£3.40	
15		11:55		101 gms		£2.01	
16		11:10		77 gms		£1.57	
13							
Q41:		Q42:		Q43:		Q44:	
£26.21		£0.21		206		£1.47	
£9.30		£0.97		171		£2.38	
£24.42		£0.32		187		£0.70	
£0.70		£0.93		183		£0.16	
Q45:		Q46:		Q47:		Q48:	
17		42		05:40		Spain - Madrid	
9		43		05:35		France - Paris	
13		45		05:55		Ukraine - Kyiv	
10		47		05:50		Morocco - Rabat	



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Q49:		Q50:		Q51:		Q52:	
107 km	<input type="checkbox"/>	5/4	<input type="checkbox"/>	31/25	<input type="checkbox"/>	30 sq cm	<input type="checkbox"/>
105 km	<input type="checkbox"/>	20/19	<input type="checkbox"/>	21/20	<input type="checkbox"/>	33 sq cm	<input type="checkbox"/>
98 km	<input type="checkbox"/>	20/17	<input type="checkbox"/>	1/2	<input type="checkbox"/>	28 sq cm	<input type="checkbox"/>
106 km	<input type="checkbox"/>	4/15	<input type="checkbox"/>	9/20	<input type="checkbox"/>	31 sq cm	<input type="checkbox"/>
Q53:		Q54:		Q55:		Q56:	
110	<input type="checkbox"/>	23	<input type="checkbox"/>	990 kilo-meters	<input type="checkbox"/>	10	<input type="checkbox"/>
140	<input type="checkbox"/>	12	<input type="checkbox"/>	155 kilo-meters	<input type="checkbox"/>	14	<input type="checkbox"/>
120	<input type="checkbox"/>	21	<input type="checkbox"/>	990 meters	<input type="checkbox"/>	46	<input type="checkbox"/>
43	<input type="checkbox"/>	6	<input type="checkbox"/>	570 kilo-meters	<input type="checkbox"/>	36	<input type="checkbox"/>
Q57:		Q58:		Q59:		Q60:	
180	<input type="checkbox"/>	5	<input type="checkbox"/>	1.862 Kgs	<input type="checkbox"/>	3	<input type="checkbox"/>
80	<input type="checkbox"/>	8	<input type="checkbox"/>	2.154 Kgs	<input type="checkbox"/>	12	<input type="checkbox"/>
60	<input type="checkbox"/>	4	<input type="checkbox"/>	2.148 Kgs	<input type="checkbox"/>	4	<input type="checkbox"/>
120	<input type="checkbox"/>	9	<input type="checkbox"/>	1.430 Kgs	<input type="checkbox"/>	9	<input type="checkbox"/>

**ANSWERS**

1	59	$\frac{2}{15} + \frac{2}{7} = \frac{59}{105}$
2	30	$\frac{7}{12} - \frac{3}{20} = \frac{13}{30}$
3	2	$\frac{8}{18} \times \frac{5}{10} = \frac{2}{9}$
4	128	$\frac{8}{11} \div \frac{1}{16} = \frac{128}{11}$
5	5	The factors of 126 are 1, 2, 3, 6, 7, 9, 14, 18, 21, 42, 63, 126
6	90	Factors of 5 are 1, 5. Factors of 2 are 1. Factors of 18 are 1, 2, 3, 6, 9, 18.
7	5	Factors of 70 are 1, 2, 5, 7, 10, 14, 35, 70. Factors of 35 are 1, 5, 35. Factors of 10 are 1, 2, 5, 10.
8	103473	$49991 + 53482 = 103473$
9	36980	$86 \times 430 = 36980$
10	72986	$78299 - 5313 = 72986$
11	383	$4596 \div 12 = 383$
12	Tens	
13	3 83	3 and 83 are prime numbers.
14	2335 4953	4953 and 2335 are odd numbers.
15	441 100	441 and 100 are square or cube numbers.
16	1606	Calculate the following: $88 + (46 \times 33) = 1606$
17	7774477	Seven Million, Seven Hundred and Seventy Four Thousand, Four Hundred and Seventy Seven in numbers is 7774477.
18	111	$(111 \times 38) + 166 = 4384$
19	17.128	17.128
20	1747.22	$920.56 + 826.66 = 1747.22$
21	590.171	$642.631 - 52.46 = 590.171$
22	828.504	$66.6 \times 12.44 = 828.504$
23	4.5	$74.7 \div 16.6 = 4.5$
24	60.84	The decimals in ascending order are - 13.8, 18.4, 38.15, 59.97, 60.84



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25	66	$9 + 11 + 18 + 0 + 17 + 8 + 3 = 66$
26	256	Calculate the percentage share of IMPREAL MINTS. Quantity of IMPREAL MINTS Sold = $(184/23) \times 32$
27	24.75%	$99/400 = 24.75\%$
28	44/45	The common factor is 18. $792/810 = 44/45$
29	95.00%	19 out of 20 = 95.00%
30	(10,7)	Count the grid along the X and Y axis. Also note the starting point of the grid.
31	$3x = -y$	
32	B	
33	252	$14 \times 18 = 252$ sqcm
34	36	$(2 \times 8) + (2 \times 10) = 36$ cm
35	4.95 sq-m	Area of each tile = $10 \times 10 = 100$. The total area covered = $100 \times 495 = 4.95$ sq-m
36	10.8 m	Length of first side is = Tile Side x No of tiles used = 10×22 The length of second side can be calculated by dividing the total tiles used by the numbe of tiles along one side. The two sides therefore are 220 and 320 cm
37	16	Calculate from Venn diagram shown.
38	12:45	Departure times for the next bus from destinations enroute : 11:45, 12:05, 12:20, 12:30, 12:45
39	225 gms	Amount of CREAM = $(210 / 14) * 15$ gms
40	£2.01	Cost for 4 TWIRL = £2.76. Cost for 3 CREME EGG = £1.23. Total cost = £3.99
41	£24.42	Given that each slice weights 150 grams and the full cake weights 1.65 kilos the cake has 11 slices. Multiply cost per slice of £2.22 by 11 to get £24.42.
42	£0.32	8 bars cost £4.88 leaving a remainder of £0.32.
43	187	If 32% like golf then 68% do not like golf. 68% of total student population = 187
44	£0.16	Cost in Pounds = $22 / 140.51 = £0.16$
45	13	
46	43	There are Three children and each gets Twelve sweets. The total sweets therefore = $(3 \times 12) + 7 = 43$
47	05:40	$(01:40 + 01:25 + 01:10 + 01:35) - 10$ seconds = 05:40



48	France - Paris	27 was the maximum temperature
49	105 km	The speed of the fastest car is 180 kmph. Time taken by fastest car to complete the race = $225 / 180 = 1 \text{ hrs } 15 \text{ min}$. The speed of the slowest car is 84 kmph. Distance covered by the slowest car in the same time = 105 km
50	4/15	The names of students in a class are listed below. If a student was selected from the list at random then what is the probability that their name STARTS-WITH 'S' ? (ELEANOR, EVELYN, LOLA, ISABEL, CHARLOTTE, SARAH, LAUREN, LAYLA, MEGAN, SOPHIA, ALICIA, SIENNA, SKYE, POPPY, LEXI). The probability is therefore 4/15
51	31/25	The fractions in ascending order are = $9/20$, $1/2$, $21/20$, $31/25$
52	30 sq cm	If the perimeter is 34 cm then the base is 5 cm. The area is calculated as $(\text{base} \times \text{altitude})/2 = 30 \text{ sq cm}$
53	120	The third angle = $180 - (20 + 40) = 120 \text{ degrees}$
54	21	$(8 \times 13) + (17 \times 5) = 9 \times 21$
55	990 meters	Actual distance = $11000 \times (54 / 6) = 990 \text{ meters}$
56	46	Total passengers on the bus = $9 - 3 + 40 = 46$
57	60	Symbols x Multiple = $3 \times 20 = 60$
58	5	You can pack 640 chocolates in 4 boxes. You will need one additional box of the remainder 48 chocolates.
59	1.862 Kgs	$1102 + 760 = 1.862 \text{ Kgs}$
60	12	Total sales for the week excluding Saturday = 51. Therefore sale for Saturday = $(9 \times 7) - 51 = 12$