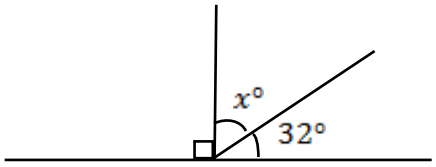
Stockport Grammar School
Entrance Examination
Mathematics Sample Paper
Time: 1 Hour

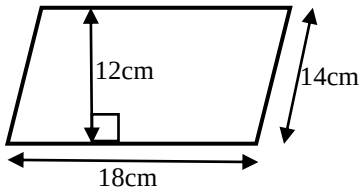
Number:

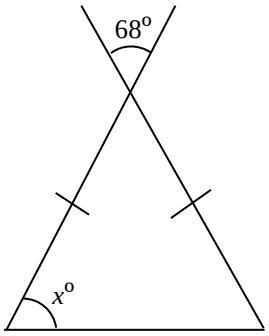
Name:

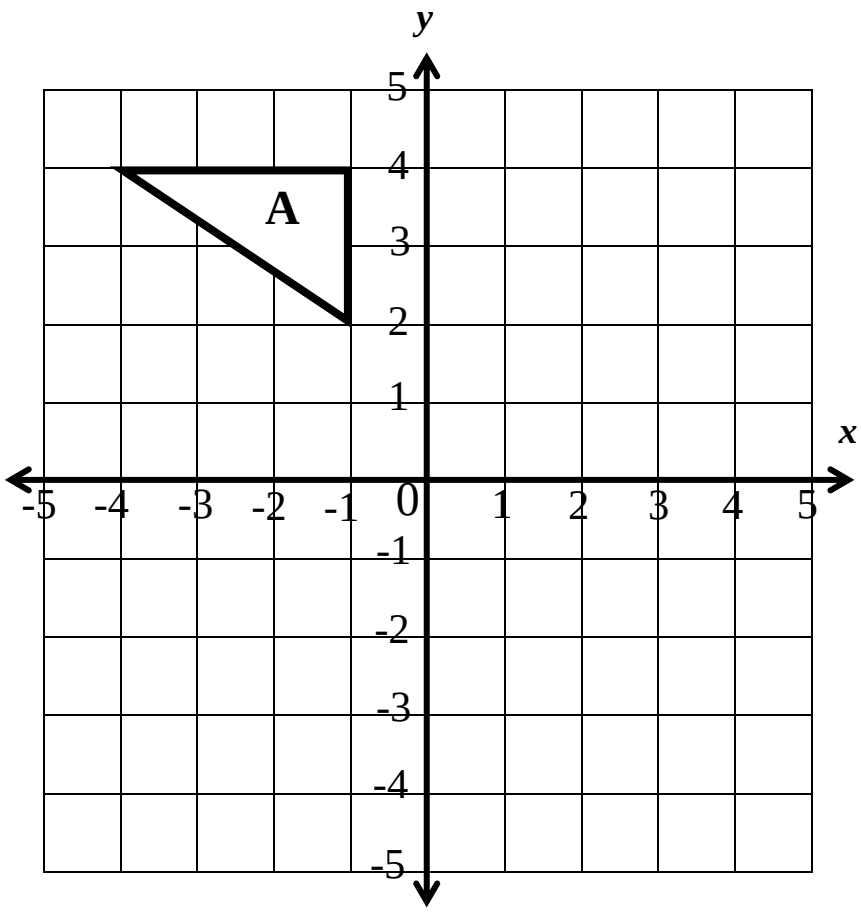
Answer as many questions as you can in any order. Show your working and then put your answer in the space provided. If you find a question difficult then leave it out and come back to it later.

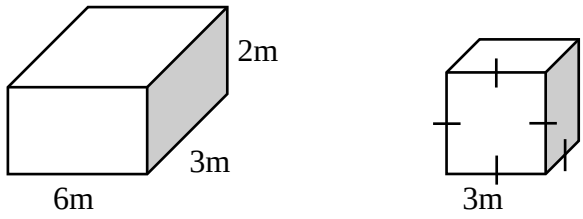
1.	Work out the answers to: a) 241 × 7 b) 39 × 16	Answer a) _____ b) _____
2.	Work out the answers to: a) 9642 ÷ 3 b) 512 ÷ 16	Answer a) _____ b) _____
3.	Work out the answers to: a) 5412 + 6948 b) 5021 − 3879	Answer a) _____ b) _____
4.	Work out the answers to: a) 8 × 3 − 10 + 6 b) 72 ÷ 9 × 7	Answer a) _____ b) _____
5.	a) Find 35% of 160	Answer _____

6.	Find, giving your answers in cm: a) 12m + 37cm b) 6.3km – 140m	Answer a) _____ b) _____
7.	Which is the largest? $0.305, \quad \frac{1}{4}, \quad 0.3, \quad \frac{1}{3}, \quad 0.35$	Answer: _____
8	Find the missing angle, *x*:  	Answer: _____
9.	Sam and Alice have baked a cake. Sam eats $\frac{1}{4}$ of the cake. Alice eats $\frac{2}{5}$ of the cake. What fraction of the cake have they eaten altogether?	Answer: _____
10.	Matthew buys 2 sandwiches and a cookie with a £5 note. How much change does he receive? **Price List** Sandwich £1.49 Cookie £0.69 Ice Lolly £0.49 Soda £0.99	Answer: _____
11.	The Battle of Naseby occurred on 14th June 1645. How many years ago will that be on 14th June this year?	Answer: _____

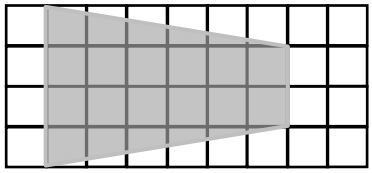
12.	Five bags of rice have masses of 75g, 64g, 53g, 62g and 46g. Find the mean mass of a bag of rice.	Answer: _____ g
13.	 a) Find the area of the parallelogram b) Find the perimeter of the parallelogram	a) Area = _____ cm^2 b) Perimeter = _____ cm
14.	Lucy takes 2 hours and 25 minutes to walk up a mountain and 1 hour and 45 minutes to walk down. For how long does she walk altogether?	Answer: ___ hrs ____ mins
15.	In the number 267,865 how many times bigger is the value of the first digit 6 than the value of the second digit 6?	Answer: _____
16.	Which is better value, 600g for £3 or 500g for £2.75?	Answer: _____

17.	Find the size of angle *x*:  	Answer: _____
18.	Bilal wants to divide 235m of string equally between seven kites. Work out how much string each kite would get, giving your answer to one decimal place.	Answer: _____
19.	Find the obtuse angle between the hands of a clock at 5 o'clock.	Answer: _____
20.	a) What is the highest common factor of 14 and 42? b) What is the lowest common multiple of 8 and 16?	Answer a) _____ b) _____
21.	How many of the following numbers are prime? 43,521 43,526 43,527 43,530 43,545	Answer: _____

22.	a) State the coordinates of each vertex of the triangle. b) Find the area of the triangle c) Reflect the triangle in the *x*-axis and label your shape B  	Answer: a) _____ _____ _____ b) _____units^2
23.	The table shows the average temperatures of some European cities. **Average January Temperatures:** London 7°C Moscow -4°C Barcelona 12°C a) On average, how much warmer is London than Moscow? b) On a snowy day in Barcelona, the temperature is 19°C colder than the average for January. What was the temperature that day?	Answer: a) _____°C b) _____°C

24.	a) What is the difference in volumes of the two boxes?  b) What fraction of the bigger box's volume is the volume of the smaller box?	Answer: a) _____ m^3 b) _____
25.	Here is a recipe to make 6 pancakes. **Recipe for 6 Pancakes:** **120g** Plain Flour **3** Eggs **210ml** Milk a) How much of each ingredient is needed to make 18 pancakes? b) How much of each ingredient is needed to make 8 pancakes?	Answer: a) _____ g Plain Flour _____ Eggs _____ml Milk b) _____ g Plain Flour _____ Eggs _____ml Milk
26.	Vale Youth Club has 126 members. There are 20 more boys than girls. How many girls are members of the Youth Club?	Answer: _____

27.	A number sequence is made by taking the previous number, doubling it and then subtracting 3. The first three numbers in the sequence are: 4, 5, 7… What is the sum of the next three terms in the sequence?	Answer: _____
28.	Insert the symbols +, −, ×, ÷ into the boxes to make the calculations correct: 14☐2☐3 = 31 120☐4☐8 = 38 25☐7☐3 = 29	
29.	A clock shows 14:27 a) How long is it since 10:32? b) How long is it until midnight?	Answer: a) ____ hrs ____ mins b) ____ hrs ____ mins
30.	Mr Green goes into a café and buys one pack of sandwiches, one biscuit and two cups of tea and is charged £5.80 Mrs Plum goes into the café and buys two packs of sandwiches, two biscuits and one cup of tea and is charged £6.50 a) How much would it cost for one pack of sandwiches, one biscuit and one cup of tea? b) How much is a pack of sandwiches and a biscuit? c) How much is a cup of tea?	Answer: a) _____ b) _____ c) _____

31.	The following grid is made of 1cm squares. a) What is the area of the shaded shape?  b) Is the perimeter of the shape 18cm, more than 18cm, or less than 18cm?	Answer: a) _____ cm² b) _____
32.	The difference between a third of a certain number and one quarter of the number is 5. What is the number?	Answer: _____
33.	$x*y$ means "square x and add three lots of y" eg $5 * 4$ means $5^2 + (3 \times 4) = 25 + 12 = 37$ a) Work out $4 * 5$ b) Work out $13 * 16$ c) If $p * 4 = 48$ find the value of p d) If $2 * q = 25$ find the value of q e) If $s * t = 10$ where s and t are positive whole numbers, what are the possible values of s?	Answer: a) _____ b) _____ c) _____ d) _____ e) _____

NOW GO BACK AND TRY THE QUESTIONS YOU MISSED OUT

Stockport Grammar School
Entrance Examination
Mathematics Sample Paper
Time: 1 Hour

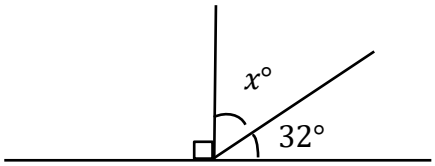
Number:

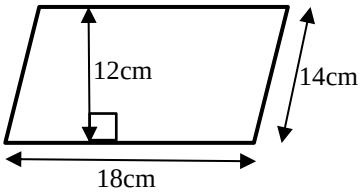
Name: **MARK SCHEME**

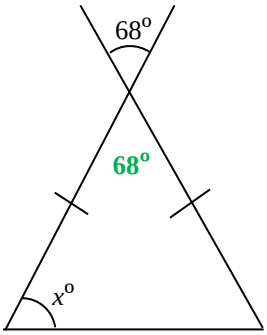
A1 – Accuracy Mark **B1 – Independent Mark** **M1 – Method Mark**

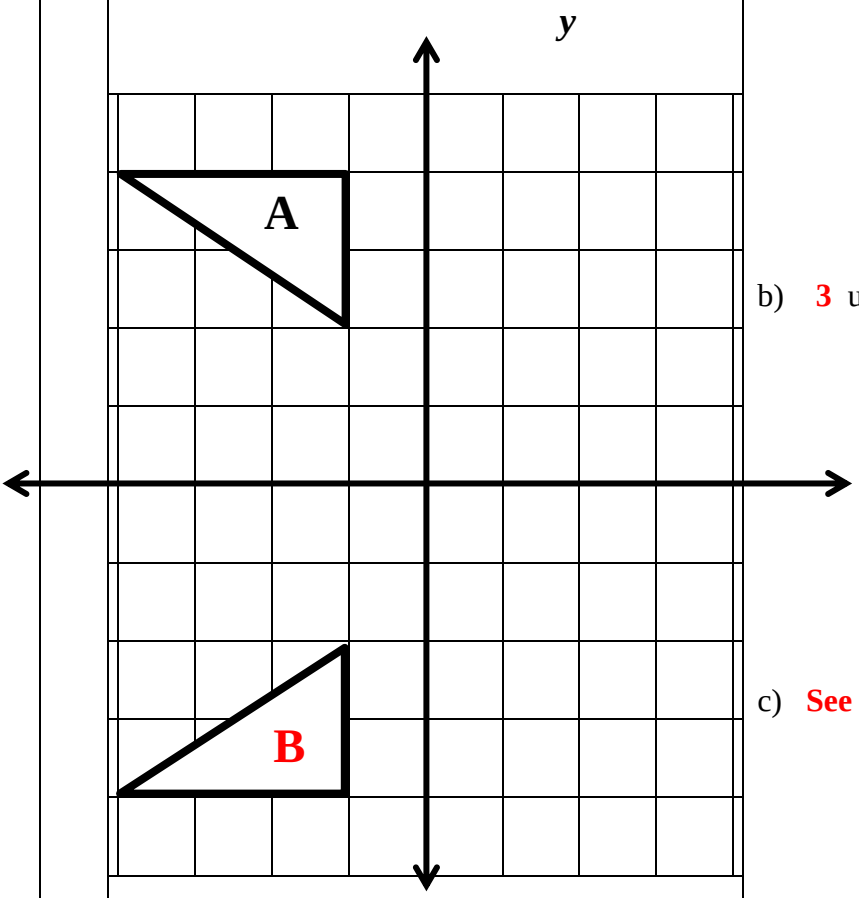
SC – Special Case **cao – Correct Answer Only**

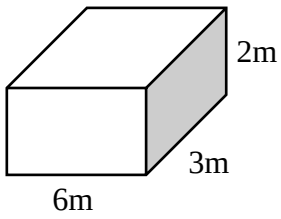
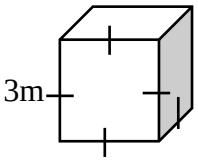
1.	Work out the answers to: a) 241 × 7 b) 39 × 16	Answer a) **1687** b) **624**	**B1** **B1**
2.	Work out the answers to: a) 9642 ÷ 3 b) 512 ÷ 16	Answer a) **3214** b) **32**	**B1** **B1**
3.	Work out the answers to: a) 5412 + 6948 b) 5021 − 3879	Answer a) **12,360** b) **1142**	**B1** **B1**
4.	Work out the answers to: a) 8 × 3 − 10 + 6 b) 72 ÷ 9 × 7	Answer a) **20** b) **56**	**B1** **B1**
5.	a) Find 35% of 160	Answer **56**	**B1**

6.	Find, giving your answers in cm: a) 12m + 37cm b) 6.3km – 140m	Answer a) **1237** (cm) b) **616,000** (cm)	**M1 add** **A1 cao in cm** **M1 subtract** **A1 cao in cm**
7.	Which is the largest? 0.305, $\frac{1}{4}$, 0.3, $\frac{1}{3}$, 0.35	Answer: **0.35**	**B1**
8	Find the missing angle, *x*:  	**M1 for either 90 – 32** **or 180 – 90 - 32** Answer: **58**(°)	**M1** **A1**
9.	Sam and Alice have baked a cake. Sam eats $\frac{1}{4}$ of the cake. Alice eats $\frac{2}{5}$ of the cake. What fraction of the cake have they eaten altogether?	Answer: $\frac{\mathbf{13}}{\mathbf{20}}$	**M1 for common denominator** **M1 for two correct equivalent fractions** **A1**
10.	Matthew buys 2 sandwiches and a cookie with a £5 note. How much change does he receive? **Price List** Sandwich £1.49 Cookie £0.69 Ice Lolly £0.49 Soda £0.99	Answer: **£1.33**	**M1 for 1.49 x 2 + 0.69** **A1 for £3.67** **A1 for £1.33**

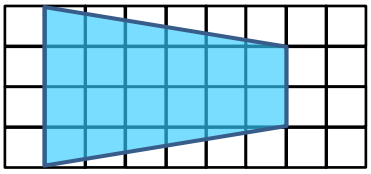
11.	The Battle of Naseby occurred on 14th June 1645. How many years ago will that be on 14th June this year?	Answer: **378**	**M1 for 2023 - 1645** **A1**
12.	Five bags of rice have masses of 75g, 64g, 53g, 62g and 46g. Find the mean mass of a bag of rice.	Answer: **60** g	**M1 for adding masses** **M1 for ÷ by 5** **A1**
13.	 a) Find the area of the parallelogram b) Find the perimeter of the parallelogram	a) Area = **216** cm^2 b) Perimeter = **64** cm	**M1 for 12 x 18** **A1** **M1 for 18 + 18 + 12 + 12** **A1**
14.	Lucy takes 2 hours and 25 minutes to walk up a mountain and 1 hour and 45 minutes to walk down. For how long does she walk altogether?	Answer: **4** hrs **10** mins	**M1 for conversion of 1hr to 60mins** **A1**
15.	In the number 267,865 how many times bigger is the value of the first digit 6 than the value of the second digit 6?	Answer: **1000**	**B1**

16.	Which is better value, 600g for £3 or 500g for £2.75?	Answer: **600g** or **£3**	**M1 for comparing equal mass** **(e.g. 100 g = 50p 100 g = 55p)** **A1**
17.	Find the size of angle *x*:  	Answer: **56**(°)	**B1 for opposite angle = 68** **B1 for knowing 180 in a triangle (180 – 68)** **M1 for 112 ÷ 2** **A1 for 56**
18.	Bilal wants to divide 235m of string equally between seven kites. Work out how much string each kite would get, giving your answer to one decimal place.	Answer: **33.6**	**M1 for attempt to divide** **A1 for 33.57 or 33.5** **A1 for 33.6 rounded**
19.	Find the obtuse angle between the hands of a clock at 5 o'clock.	Answer: **150**(°)	**M1 for 360 ÷ 12 × 5** **A1 for 150** **(SC: 210° gets B1A0)**
20.	a) What is the highest common factor of 14 and 42? b) What is the lowest common multiple of 8 and 16?	Answer a) **14** b) **16**	**B2** **(SC: 7 gets B1)** **B1**
21.	How many of the following numbers are prime? 43,521 43,526 43,527 43,530 43,545	Answer: **None** (or) **0**	**B2 cao**

22.	a) State the coordinates of each vertex of the triangle. b) Find the area of the triangle c) Reflect the triangle in the *x*-axis and label your shape B  	Answer: a) **(-1, 2),** **(-1, 4) and** **(-4, 4)** b) **3** units^2 c) **See Diagram**	**B1** **B1** **B1** **Only penalise max of 1 mark for missing brackets** **M1 for 2 × 3 ÷ 2** **A1** **B2** **(SC: reflect in y-axis gets B1)**
23.	The table shows the average temperatures of some European cities. **Average January Temperatures:** London 7°C Moscow -4°C Barcelona 12°C a) On average, how much warmer is London than Moscow? b) On a snowy day in Barcelona, the temperature is 19°C colder than the average for January. What was the temperature that day?	Answer: a) **11** °C b) **-7** °C	**M1 for 7 - - 4** **A1** **M1 for 12 – 19** **A1**

24.	a) What is the difference in volumes of the two boxes?   b) What fraction of the bigger box's volume is the volume of the smaller box?	Answer: a) **9** m^3 b) $\frac{27}{36}$ *or* $\frac{3}{4}$	**M1 for 6 × 3 × 2** **M1 for 3 × 3 × 3** **A1 for 36 – 27 = 9** **B1**
25.	Here is a recipe to make 6 pancakes. **Recipe for 6 Pancakes:** **120g** Plain Flour **3** Eggs **210ml** Milk a) How much of each ingredient is needed to make 18 pancakes? b) How much of each ingredient is needed to make 8 pancakes?	Answer: a) **360** g Plain Flour **9** Eggs **630** ml Milk b) **160** g Plain Flour **4** Eggs **280** ml Milk	**B2** **– 1 for each error** **B2** **– 1 for each error**
26.	Vale Youth Club has 126 members. There are 20 more boys than girls. How many girls are members of the Youth Club?	Answer: **53**	**M1 attempting values with diff of 20 or values with sum of 126** **A1**

27.	A number sequence is made by taking the previous number, doubling it and then subtracting 3. The first three numbers in the sequence are: 4, 5, 7… **11** **19** **35** What is the sum of the next three terms in the sequence? **11 + 19 + 35 = 65**	Answer: **65**	**B1 for next term 11** **B1 for getting correct 3 terms** **B1 for 65**
28.	Insert the symbols +, −, ×, ÷ into the boxes to make the calculations correct: 14 × 2 + 3 = 31 120 ÷ 4 + 8 = 38 25 + 7 − 3 = 29		**B1** **B1** **B1**
29.	A clock shows 14:27 a) How long is it since 10:32? b) How long is it until midnight?	Answer: a) **3** hrs **55** mins b) **9** hrs **33** mins	**B2** **B2**
30.	Mr Green goes into a café and buys one pack of sandwiches, one biscuit and two cups of tea and is charged £5.80 Mrs Plum goes into the café and buys two packs of sandwiches, two biscuits and one cup of tea and is charged £6.50 a) How much would it cost for one pack of sandwiches, one biscuit and one cup of tea? b) How much is a pack of sandwiches and a biscuit? c) How much is a cup of tea?	Answer: **s b 2t = 5.80** **2s 2b t = 6.50** **3s + 3b + 3t = 12.30** **s + b + t = £4.10** **2s 2b t = 6.50** **s b t = 4.10** **s + b = £2.40** **s b 2t = 5.80** **s b t = 4.10** **t = £1.70**	If no working, correct answers score all method marks. **M1 for adding** **M1 for ÷ 3** **A1** **M1 for subtracting** **A1** **M1** **A1**

31.	The following grid is made of 1cm squares. a) What is the area of the shaded shape?  b) Is the perimeter of the shape 18cm, more than 18cm, or less than 18cm?	Answer: a) **18** cm² b) **more than 18**	**B1** **B1**
32.	The difference between a third of a certain number and one quarter of the number is 5. What is the number?	Answer: **60**	**M1 for attempting multiples of 12** **A1**
33.	$x*y$ means "square x and add three lots of y" eg $5 * 4$ means $5^2 + (3 \times 4) = 25 + 12 = 37$ a) Work out $4 * 5$ b) Work out $13 * 16$ c) If $p * 4 = 48$ find the value of p d) If $2 * q = 25$ find the value of q e) If $s * t = 10$ where s and t are positive whole numbers, what are the possible values of s?	Answer: a) **31** b) **217** c) **6 (or -6)** d) **7** e) **1 or 2**	**M1 for $4^2 + 3 \times 5$** **A1** **M1 for $13^2 + 3 \times 16$** **A1** **B1** **B1** **B1 (both required)**

NOW GO BACK AND TRY THE QUESTIONS YOU MISSED OUT