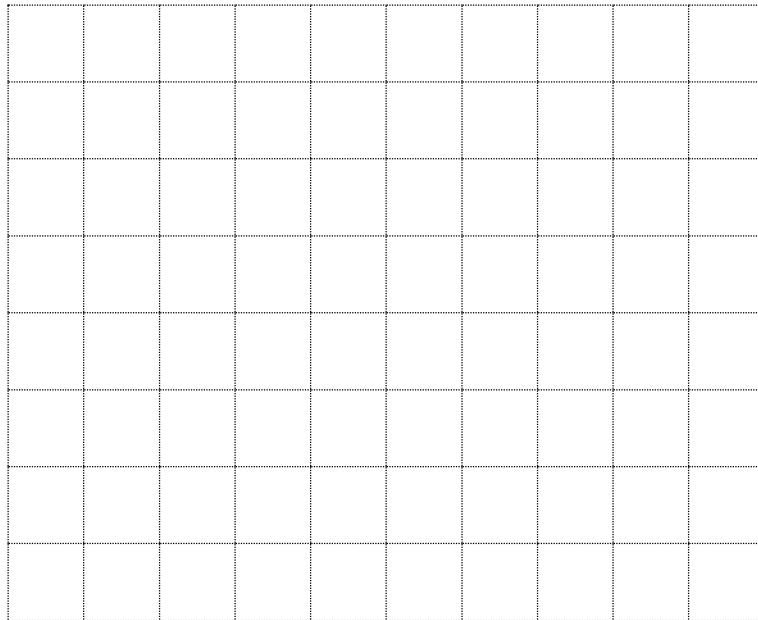# Question Bank for grade 8

Q1. On the grid on the below, draw a triangle with no rotational symmetry and just 1 line of

a) symmetry and name the drawn triangle.

Name: _____

b) Complete the description about equilateral triangle.

Equilateral triangles have _____ lines of symmetry and
_____ order of rotational symmetry. Every interior angle is _____.

Q2.Find the difference between the largest and the smallest share when $160 is shared among 3 people in the ratio 2:5:13.

Q3.An athlete runs a distance of 15 km in 3 hours and then rides a bicycle for a distance of 58 km in 5 hours. Find his average speed.

Q4.The denominator of a fraction exceeds the denominator by 4. When 3 is added to both the denominator and the numerator the fraction becomes 4/5. Find the fraction.

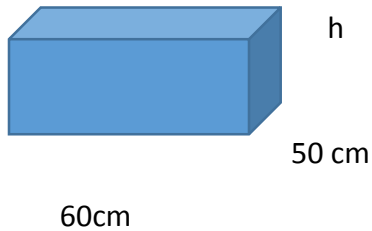Q5. Solve the following simultaneous linear equations

5x – 3y = 2

3 x – 7y = 11

Q6. a) If a > b and b > -4, then a_____-4.

b) Solve the following inequalities, illustrating each solution by a number line.

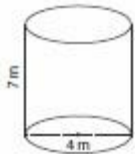i) x + 3 > 4

ii) $\frac{x+1}{4} - \frac{1}{12} < \frac{x}{3}$

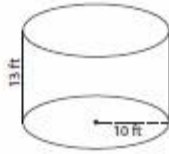Q7. A cuboid is shown in the diagram. The volume of the cuboid is 90,000 cm³. Find the height of the cuboid.

h

50 cm

60cm

Q8.

Find the exact surface area of each cylinder.

1)

7 m

4 m

Surface Area = _____

2)

13 ft
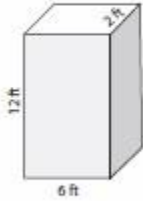
10 ft

Surface Area = _____

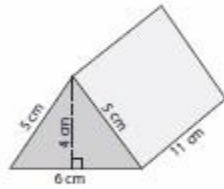3)

9 cm

12 cm

Surface Area = _____

Find the exact surface area of each prism.

1)

2)

3)

Surface Area = _____   Surface Area = _____   Surface Area = _____

Q8. Solve the given pair of simultaneous equations by **elimination**.

$$2h - j = 3$$
$$3h + 2j = 8$$

Q9.Solve the given pair of simultaneous equations by **substitution**.

$$n + p = 9$$
$$4n - p = 1$$

Solve the following inequalities and illustrate the solution on number line

a) $\frac{x+1}{3} - \frac{x}{4} \geq \frac{1}{2}$

b) $\frac{3x+4}{6} + \frac{1}{3} < \frac{3}{4}x$

Q10. 48 pencils are shared among Yin Yin, Ruby and Jane in the ratio 2: 5: 9. Find the difference between Yin Yin's share and Jane's share.

Q11.

a) Find the 40th term in the sequence:

5; 2; -1; -4...

b) The seating of a sports stadium is arranged so that the first row has 15 seats, the second row has 19 seats; the third row has 23 seats and so on. Calculate how many seats are in the twenty-fifth row.

c) Which term in the sequence

1; -2; -5; .... is equal to -32?

d) In each case the general term is given write down the first three terms of the sequence:
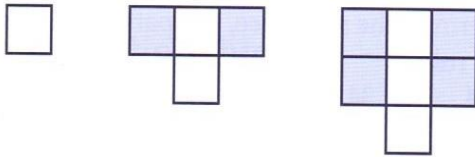
4.1 4.2

e) Write down the next three terms of the sequence:

6; 4; 0; -6; ...

e) Find the formula for the general term of the sequence:

6; 10; 14; 18; ...

Q12.

a) Draw the next two diagrams in the sequence.
b) Copy and complete this table.

Number of white tiles	1	2	3	4	5
Number of blue tiles					

c) Describe the pattern linking the number of white tiles and the number of blue tiles.
d) Use your rule in part c) to predict the number of blue tiles in a pattern with 100 white tiles.

Q13.
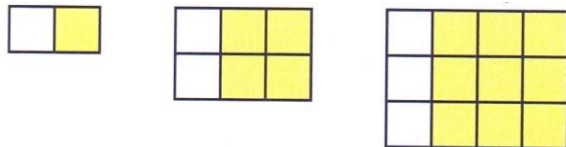
a) Draw the next two diagrams in the sequence.
b) Copy and complete this table.

Number of white tiles	1	2	3	4	5
Number of yellow tiles					

c) Describe the pattern linking the number of white tiles and the number of yellow tiles.

d) Use your rule in part c) to predict the number of yellow tiles in pattern with 100 white tiles.

Q14. For each of the sequences

a) Find the nth term of yellow tiles
b) Write down the next two terms of the sequence
c) Calculate the tenth term
   1. 2 4   6 8   10
   2. 144 132 120 108
   3. 9 18   27 36   45

Q15.

a) The perimeter P, of a triangle is given by the formula
   P = 6x + 3
i)   Find the value of P when x = 4
ii)   Find the value of x when P = 39
iii)   Rearrange the formula to find x in terms of P
b) The perimeter of another triangle of (9x + 4) centimetres
   Two sides of this triangle are of length 2x centimetres and (3x + 1) centimetres.
   i)   Find an expression, in terms of x, for the length of the third side.
   ii)   The perimeter of this triangle is 49 cm. Find the length of each side.

Q16.
a) Round each of the following to the (i) nearest whole number (ii) one decimal place (iii) two decimal place
0.1436   5.756
b) Estimate each of these square roots $\sqrt{0.6}$
c) State the number of significant figures
i) 60.08
ii) 0.0593
d) Estimate each of the following cube roots
i) $\sqrt[3]{200}$
ii) $\sqrt[3]{40}$

a) Round off the following numbers according to the decimal places shown in the brackets and the correct answer in the last column.

Numbers	Decimal places	Rounded off answers
1.53821	(2)	**1.54**

3.42151	(3)	**3.422**
0.6337	(2)	**0.63**
2.8842	(1)	**2.9**
0.00524	(4)	**0.0052**

Express the following numbers correct to the number of significant figures
Indicated within the brackets:

      i)   4.0672 (2) **4.1**
      ii) 18.08   (3) **18.1**

      iii) 1.48356 (4) **1.484**

Express 0.08294 correct to three decimal places and state the number of significant figures in the result.

Q17.
The force acting on an object during a collision is given by the formula

$$F = \frac{mv - mu}{t}$$

   a) Given that m = 4, v = 5, u = 3 and t = 0.01, find the value of F.
   b) Rearrange the formula to make m the subject.

Q18.

a) Simplify the following

i) $\dfrac{(2x^3y)^3}{(4xy^2)^2(xy^3)}$ ii) $\dfrac{10xy^4}{30x^2y^2z^3}$

b) Express the ratio 15 minutes: 2 hours as a single fraction in its lowest terms.

Q19. The profit on a certain refrigerator is 35% of the cost price. If the profit is $280, find

   a) The cost price
   b) The selling price of the refrigerator

Q20. Given that $x = 2 \times 10^{-3}$ and $y = 7 \times 10^{-4}$, evaluate x + 8y, and evaluate your answer in the standard form.

Q21.Evaluate 78 microseconds + 512 nanoseconds in standard form in seconds.

Q22. Complete the following table:

	Distance	Time	Speed
a)	1200m	4 minutes	m/s
b)		360 minutes	45 km/h

Q23.

a) Convert 0.8 kilometres into millimetres.
b) Evaluate $(6.3 \times 10^6) \div (9 \times 10^2)$, giving your answer in standard form.
c) Calculate 5% of $ 280000.