

D Summer IGCSE Revision 2

1. Evaluate;

(a) $2\frac{1}{3} + 1\frac{4}{7}$.

$3\frac{19}{21}$

(b) $2\frac{1}{3} - 1\frac{4}{7}$.

$\frac{16}{21}$

(c) $2\frac{1}{3} \times 1\frac{4}{7}$.

$3\frac{2}{3}$

(d) $2\frac{1}{3} \div 1\frac{4}{7}$.

$1\frac{16}{33}$

2. Given that $4046 \div 14 = 289$, without a calculator, what is;

(a) 2890×0.014 ?

40.46

(b) $\frac{4.046}{140}$?

0.0289

(c) $404600 \div 2.89$?

140000

3. Convert 4.6m/s^2 (an acceleration) into km/hr^2 .

59616km/hr^2

4. The perpendicular height of a triangle is 5cm. Its area is 72.5cm^2 . What is its base length?

29cm

5. The perpendicular height of a triangle is h . Its area is A . What is its base length?

$b = \frac{2A}{h}$

6. The triangle ABC has a right angle at B . The length AC is x . The angle A is 25 degrees. Find an *expression* for the area of the triangle.

$\frac{x^2}{2} (\sin 25)(\cos 25)$

7. A triangle has lengths x , x and y . Find a *formula* for the area (A) of the triangle. (Don't use Heron's formula.)

$A = \frac{1}{2}y\sqrt{x^2 - \frac{y^2}{4}}$

8. A cylinder has surface area of $500\pi\text{cm}^2$. Its radius is 2cm. What is its volume?

$V = 492\pi$

9. The equation $2x + kx + 3 = -4x - 2kx - 6$ has the solution $x = 4$. What must k be?

$k = -2\frac{5}{12}$

10. Make x the subject of $c = \frac{x+a}{d} + b$.

$x = \frac{cd-b-1}{cd-b-1}$

11. A triangle A 's vertices lie on the points (1, 3), (2, 4) and (2, 0). Find the vertices of the image of A under the following transformations;

(a) A translation of $\begin{pmatrix} -3 \\ 1 \end{pmatrix}$.

(-2, 4), (-1, 5), (-1, 1)

(b) A reflection in the line $y = x$.

(3, 1), (4, 2), (0, 2)

(c) A rotation of 90 degrees anti-clockwise about the point $(-1, -2)$.

(-6, 0), (-7, 1), (-3, 1)

(d) An enlargement of scale factor -2 with centre of enlargement (1, 1).

(1, -3), (-1, -5), (-1, 3)

12. The triangle from the above question has been transformed. The vertices of the image lie at the points (7, 7), (6, 6) and (6, 10). Describe *fully* the single transformation that A has undergone.

Enlargement, scale factor -1 with centre (4, 5)

13. A shape has undergone an enlargement. The area of the image is 9 times larger than the object. What are the possible value(s) of the scale factor?

3 or -3

14. The distance between the two points $(2, 3)$ and the point $(7, k)$ is 13. What are the possible values of k ?

$$k = 15 \text{ or } k = -9$$

15. The trapezium $ABCD$ has side AD parallel to BC . It also has angle A and angle B right angles. $AD = x$ and $AB = 2x$. Angle CAB is 70 degrees. What is the area of $ABCD$?

$$A = 2x^2 \tan 70 + x^2$$