

IGCSE Revision 1

1. Solve $\frac{2x+3}{4} - \frac{x-2}{5} = \frac{1}{2}x$.

$x = \frac{23}{4}$

2. Solve $\frac{10x}{2x+5} = 2$.

$x = \frac{5}{3}$

3. Solve $4(x+3)^2 - 4 = 45$.

$x = \frac{1}{2}$ or $x = -\frac{13}{2}$

4. What is the equation of the line passing through (100, 177) and (55, 87)?

$y = 2x - 23$

5. What is the distance between the two points above?

100.623... units

6. I start at point A . I walk 3km North and then 7km East. This is point B .

(a) What is the distance (to 3sf) of A from B ?

7.62km

(b) What is the bearing of A from B ?

246.80°

(c) What is the bearing of B from A ?

066.80°

7. The face of a prism is a circle of diameter 20cm with a square of perimeter 8cm drilled out of it. It is 2m long. What is

(a) Its volume (in cm^3)?

62031.85 cm^3

(b) Its S.A.?

14786.69 cm^2

8. Simplify $\frac{2x^2y^3 \times 4x^4y}{16x^7y^2}$.

$\frac{y}{2x}$

9. Simplify $-3 \times (-2x)^3$.

24 x^3

10. If I invested £1000 in a bank account paying 5% compound interest and another £1000 in an account paying 6% simple interest, how many years would it take for the amount of money in the first account to overtake the amount of money in the second account?

9 years

11. A linear (arithmetic) sequence has the following terms; $-7, -10, -13, -16 \dots$

(a) Find a formula for the n th term of the sequence.

$T = -3n - 4$

(b) What is the 300th term?

-904

(c) One of the terms is -475 . Which one?

157th

12. The third term of an arithmetic sequence is 7. The sixth term is $14\frac{1}{2}$. Find the formula for the n th term of the sequence.

$T = \frac{5}{2}n - \frac{1}{2}$

13. If 6 men can dig 12 trenches in 4 days. How long does it take 2 men to dig 36 trenches?

36 days

14. x is inversely proportional to y . When $x = 15$, $y = 7$. What is y when $x = 28$?

$y = 3.75$

15. Generate the first 5 terms of the sequence given by $T = n^2 - 2^n$.

-1, 0, 1, 0, -7

16. Make x the subject of $\frac{x+a}{x} = \frac{a+b}{y}$.

$x = \frac{ya}{a+b-y}$

17. A regular hexagon has perimeter 6cm. What is its area?

$A = 2.598 \dots \text{cm}^2$

18. A regular octagon has perimeter 8cm. What is its area?

$$A = 4.828 \dots \text{cm}^2$$

19. An n sided regular polygon has perimeter P . Find an expression for its area (A) in terms of n and P . (This is pretty tough.)

$$A = \frac{P^2}{4n \tan\left(\frac{180}{n}\right)}$$