

D Summer IGCSE Revision 5

Unless otherwise stated you *may* use a calculator. *Everything* on this worksheet is GCSE material.

- In triangle ABC , $AB = 7$, $BC = 6$ and $AC = 11$. Find angle \widehat{ABC} . 115.4°
- A few years ago I bought an antique. It has since risen in value by 12%. It is now worth £3640. What did I pay for the antique? £3250
- Use the quadratic formula to solve $2x^2 = 3x + 4$. Give your answers in the form $\frac{a}{4} \pm \frac{\sqrt{b}}{4}$ where a and b are integers to be determined. $a = 3, b = 41$
- Express $\frac{2}{3x} - \frac{7}{x-1}$ as a (fully simplified) single fraction. $\frac{-2-19x}{3x(x-1)}$
- Make a the subject of $v = \sqrt{2-a}$. $a = 2 - v^2$
- In triangle PQR , $\widehat{QPR} = 61^\circ$, $\widehat{QRP} = 71^\circ$, $QR = 8$. Find the length PQ . 8.65 to 3sf
- Factorise fully $12a^2x^2 - 26a^2x - 16a^2$. $2a^2(2x+1)(3x-8)$
- Find the area of the isosceles triangle with lengths 13cm, 13cm, 6cm. 37.9cm² (to 3sf)
- Solve the equation $\frac{2}{3-2x} = 7$. $x = \frac{19}{14}$
- Find the equation of the line through $(2, -3)$ and $(4, 2)$ in the form $ax + by + c = 0$. $5x - 2y - 16 = 0$
- Expand $(2 - \sqrt{3})^3$, giving your final answer in the form $a + b\sqrt{3}$ where a and b are integers. $26 - 15\sqrt{3}$
- Simplify fully $\frac{3(2xy)^2x^5}{6x^3y^8}$. $\frac{2x^4}{y^6}$
- Make x the subject of $\frac{x-1}{x-a} = y + 2$. $x = \frac{2a+ay-1}{1+y}$
- Find the equation of the tangent to $y = x^2 - 3x + 4 - \frac{1}{x}$ when $x = -2$. Give your answer in the form $ax + by = c$ where a , b and c are integers. $27x + 4y = 4$
- Solve $\left(\frac{3}{4}\right)^n = \frac{64}{27}$. $n = -3$
- The gradient between the points $(p, 2)$ and $(4, p+2)$ is $\frac{1}{3}$. Find p . $p = 1$
- Triangle ABC has a right angle at B . If $AB = 12$ and $BC = 17$, find the angle \widehat{BAC} . 54.8° (to 3sf)
- Without a calculator express $\sqrt{18} + \sqrt{98} + \sqrt{2}$ in the form $k\sqrt{2}$ where k is a constant to be determined. $k = 11$
- In morning break I go to the tuck shop to get food with probability 0.9. If I go to the tuck shop I have a good lesson period 3 with "6 Set 6" with probability 0.7. However, if I miss going to the tuck shop I have a good lesson with "6 Set 6" with probability 0.2.
(a) Draw a tree diagram to model the situation.

(b) On any given day what is the probability I have a good lesson with “6 Set 6”?

0.65

20. Solve the equation

$$\frac{x}{2} + \frac{x-3}{3} - \frac{2x-7}{4} = 2.$$

$x = \frac{15}{4}$

21. Solve the equation $4 \sin x + 1 = 0$ in the range $-360 < x < 360$.

$x = -165.5^\circ, -14.5^\circ, 194.5^\circ, 345.5^\circ$ (to 1dp)

22. (a) Draw an xy grid so that $-8 < x, y < 8$.

(b) Draw a triangle with vertices at $(-1, 1)$, $(-3, 1)$ and $(-3, 4)$.

(c) Reflect this triangle in the line $x = 2$.

(d) Enlarge the original triangle with a scale factor -2 with centre of enlargement $(0, 1)$.

23. Simplify fully

$$\frac{4x^2 - 10x - 6}{16x^2 - 4}.$$

$\frac{x-3}{2(2x-1)}$

24. If I invested £4500 in a bank account for 10 years with a (compound) interest rate of 4.2%, how much money would I now have in the account?

£6790.31