

F Summer Consolidation 1

- A map has scale 1 : 200000.
 - In the map a distance is 12.4 cm; how far is it in reality? 24.8 km
 - An area of land is 44 km². What area is shown in the map? 11 cm²
- Factorise fully $3a^3y^3 - 27a^3y$. $3a^3y(y-3)(y+3)$
- Factorise fully $6x^3 + 27x^2 - 15x$. $3x(2x-1)(x+5)$
- Make x the subject in $\sqrt{5-2x} = \sqrt{ax+3}$. $x = \frac{2}{a+2}$
- Make x the subject in $\frac{f-4x}{2x+a} = k$. $x = \frac{f-ak}{2k+4}$
- Solve $\frac{u-2}{3} - \frac{2u-3}{2} = 2u - 1$. $u = \frac{11}{16}$
- Solve $(x+1)(x+2) = (x+8)(x-2)$. $x = 6$
- Solve $x^2 = -x$. $x = 0$ or $x = -1$
- Solve $3x^2 = 2 + x$. $x = 1$ or $x = -\frac{2}{3}$
- Solve $\frac{x-6}{-6} < -x + \frac{2}{3}$. $x < -\frac{2}{5}$
- Find the gradient of the line $5x + 2y = 0$. $m = -\frac{5}{2}$
- Find the equation of the line with gradient $\frac{3}{4}$ through the point $(-1, -2)$ in the form $y = mx + c$. $y = \frac{3}{4}x - \frac{5}{4}$
- Find the equation of the line through $(-2, 0)$ and $(-1, \frac{1}{2})$. Give your final answer in the form $ax + by + c = 0$ where a, b and c are integers. $x - 2y + 2 = 0$
- The triangle ABC , there is a right angle at B . If $AC = 19$ and $BC = 11$. Find angle CAB . 35.4°
- The triangle ABC , there is a right angle at B . If $AB = 1$ and $CAB = 36^\circ$. Find AC . 1.236
- Find the 1000th term of the following sequence: 56, 53, 50, 47, 44, ... -2941
- Find the 100th term of the following sequence: 3, 10, 21, 36, 55, 78, ... 20100
- Solve the simultaneous equations
$$\begin{aligned} x + 2y &= 1 \\ 3x + 4y &= -1 \end{aligned}$$
 $(x, y) = (-3, 2)$