

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?
24.8km
2. Factorise fully $3a^3y^3 - 27a^3y$.
 $3a^3y(y-3)(y+3)$
3. Factorise fully $6x^3 + 27x^2 - 15x$.
 $3x(2x-1)(x+5)$
4. Make x the subject in $\sqrt{5-2x} = \sqrt{ax+3}$.
 $x = \frac{2}{a+2}$
5. Make x the subject in $\frac{f-4x}{2x+a} = k$.
 $x = \frac{f-ak}{2k+a}$
6. Solve $\frac{u-2}{3} - \frac{2u-3}{2} = 2u - 1$.
 $u = \frac{11}{16}$
7. Solve $(x+1)(x+2) = (x+8)(x-2)$.
 $x = 6$
8. Solve $x^2 = -x$.
 $x = 0$ or $x = -1$
9. Solve $3x^2 = 2 + x$.
 $x = 1$ or $x = -\frac{2}{3}$
10. Solve $\frac{x-6}{-6} < -x + \frac{2}{3}$.
□
11. Find the gradient of the line $5x + 2y = 0$.
 $m = -\frac{5}{2}$
12. Find the equation of the line with gradient $\frac{3}{4}$ through the point $(-1, -2)$ in the form $y = mx + c$.
 $y = \frac{3}{4}x - \frac{5}{4}$
13. 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.
 $x - 2y + 2 = 0$
14. The triangle ABC , there is a right angle at B . If $AC = 19$ and $BC = 11$. Find angle CAB .
□
15. The triangle ABC , there is a right angle at B . If $AB = 1$ and $CAB = 36^\circ$. Find AC .
1.236
16. Find the 1000th term of the following sequence: 56, 53, 50, 47, 44, ...
-2941
17. Solve the simultaneous equations
$$\begin{aligned} x + 2y &= 1 \\ 3x + 4y &= -1 \end{aligned}$$

 $(x, y) = (-3, 2)$