Review Sheet

Complete the following for first day back. Please complete on lined paper and not your book. Remember the three stage process for factorising (numbers, letters and *then* two brackets on any remaining quadratics) and be on the look out for the difference of two squares (e.g. $(4x^2 - 25) \equiv (2x + 5)(2x - 5)$).

1. Factorise fully

   (a) $7x^2 + 42x + 35$. $\boxed{7(x+1)(x+5)}$

   (b) $18x^2 - 6x$. $\boxed{6x(3x-1)}$

   (c) $2x^2 + 14x - 60$. $\boxed{2(x-3)(x+10)}$

   (d) $4x^2 - 4$. $\boxed{4(x-1)(x+1)}$

   (e) $16x^2 + 8x - 80$. $\boxed{8(2x+5)(x-2)}$

   (f) $100x^2 - 25$. $\boxed{25(2x+1)(2x-1)}$

   (g) $8x^2 + 20x - 12$. $\boxed{4(2x-1)(x+3)}$

   (h) $42x^2 + 77x + 21$. $\boxed{7(3x+1)(2x+3)}$

   (i) $27x^2 + 18x$. $\boxed{9x(3x+2)}$

2. Solve

   (a) $x^2 + 3x = 10$. $\boxed{x = 2 \text{ or } x = -5}$

   (b) $x^2 = x + 6$. $\boxed{x = 3 \text{ or } x = -2}$

   (c) $7x^2 = 6x$. $\boxed{x = 0 \text{ or } x = \frac{6}{7}}$

   (d) $4x^2 = 9$. $\boxed{x = \frac{3}{2} \text{ or } x = -\frac{3}{2}}$

   (e) $2x^2 + x = 3$. $\boxed{x = 1 \text{ or } x = -\frac{3}{2}}$

   (f) $3x^2 + 4x + 1 = 0$. $\boxed{x = -1 \text{ or } x = -\frac{1}{3}}$

3. Expand

   (a) $(2x - 3)^3$. $\boxed{8x^3 - 36x^2 + 54x - 27}$

   (b) $(2x - 1)(x + 3)(x - 2)$. $\boxed{2x^3 + x^2 - 13x + 6}$

4. The triangle ABC has a right angle at B. If $A\hat{C}B = 20$ and $BC = 7$ find AB. $\boxed{2.5477\ldots}$

5. The triangle ABC has a right angle at B. If $AB = 16$ and $BC = 5$ find $C\hat{A}B$. $\boxed{17.354\ldots}$

6. Triangle ABC is isosceles with $AB = AC = 5$. If $B\hat{A}C = 78$ find BC. $\boxed{6.2932\ldots}$

7. Find the gradient between the following points

   (a) $(3, 2)$ and $(1, 1)$. $\boxed{\frac{1}{2}}$

   (b) $(-1, 4)$ and $(1, 3)$. $\boxed{-\frac{1}{2}}$

   (c) $(\frac{1}{2}, 0)$ and $(\frac{1}{3}, -2)$. $\boxed{12}$

8. Find the equation of the line (in the form $y = mx + c$) the passes through $(0, 5)$ and $(-10, 0)$. [Draw a sketch to help you!] $\boxed{y = \frac{1}{2}x + 5}$

9. Find the equation of the line (in the form $y = mx + c$) the passes through $(0, -4)$ and $(6, 0)$. [Draw a sketch to help you!] $\boxed{y = \frac{2}{3}x - 4}$