Revision 2   Unit 1 - 4

1. Simplify $\dfrac{32^x \cdot 8^y}{16^{x-y}}$

   Ans: 2^{x+7y}

2. Solve $9^{2x} = \dfrac{1}{\sqrt{3}}$

   Ans: $-\dfrac{1}{8}$

3. Factorize $16x^2 y + 8xy^2 - 4xy$

   Ans: $4xy(4x + 2y - 1)$

4. Factorize $x^2 + 13x + 42$

   Ans: $(x+6)(x+7)$

5. Factorize $12x^2 + 31x + 20$

   Ans: $(3x+4)(4x+5)$

6. Factorize $25x^2 - 16$

   Ans: $(5x+4)(5x-4)$

7. Solve $4(x-1)^2 = (x+1)^2$

   Ans: $x = \dfrac{1}{3}$ or 3

8. Solve $x^2 - x - 1 = 0$, leave the answer in surd forms.

   Ans: $x = \dfrac{1 \pm \sqrt{5}}{2}$

9. If $\sqrt{4x - y^2} + 2y = 4$, then $x =$

   Ans: $x = \dfrac{5y^2 - 16y + 16}{4}$

10. Solve $h = H - \dfrac{U^2}{4g}$. If $g=3$, $h=4$, $H=7$, then $U =$

    Ans: $U = \pm 6$

11. (a)   Use factor theorem to show that (x+2) is a factor of $f(x) = x^3 - 2x^2 - 5x + 6$.

    (b)   Hence solve the equation $f(x) = x^3 - 2x^2 - 5x + 6 = 0$ completely.

    Ans: (a) $f(-2) = 0$

    Ans: (b) $x = -2$ or 3 or 1