National 5 Homework

SURDS

1. Simplify   **(a)** $\sqrt{147} - 5\sqrt{3}$ **(b)** $\sqrt{2}(\sqrt{3} + \sqrt{2}) - \sqrt{6}$ **(2,2)**

2. Express $2\sqrt{5} + \sqrt{20} - \sqrt{45}$ as a surd in its simplest form.   **(2)**

3. Express with a rational denominator $\dfrac{5}{2\sqrt{3}}$ **(2)**

INDICES

1. Simplify $\dfrac{m^5}{m^3}$ **(1)**

2. Simplify the expression below, giving your answer with a positive power.

   $m^5 \times m^{-8}$ **(2)**

3. Express

   $p^3(p^2 - p^{-3})$ in its simplest form.   **(2)**

4. Simplify

   $\dfrac{3a^2 \times 2a}{a^2}$ **(3)**

SCIENTIFIC NOTATION / SIGNIFICANT FIGURES

1. The Earth is 93 million miles from the sun, which is one astronomical unit (AU).
   The distance from the sun to Jupiter is 5·2 AU.
   Calculate the distance in miles from the sun to Jupiter and give your answer
   in standard form.   **(2)**

2. A company's profit for the year was £1·2 × 10⁸.
   Calculate the profit made per day, giving your answer to the nearest £.   **(2)**

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