**Indices Rules - Advanced**

|  |  |  |
| --- | --- | --- |
| Name : | Class : | Date : |

|  |  |  |
| --- | --- | --- |
| Mark : | /24 | % |

|  |  |
| --- | --- |
| **1)** Evaluate, giving your answer as a simplified fraction      a)  $7^{-1}$     b)  $6^{-2}$     c)  $10^{-3}$ | [3]   |
| **2)** Give your answer in the form  $\frac{1}{a^{b}}$, where a and b are positive integers        $2^{-2}$ | [1]   |
| **3)** Give your answer in the form  $a^{b}$, where a and b are integers        $\frac{1}{7^{3}}$ | [1]   |
| **4)** Give your answer in the form  $\frac{a}{b^{c}}$, where a,b and c are positive integers        $4×6^{-4}$ | [1]   |
| **5)** Give your answer in the form  $\frac{a}{b^{c}}$, where a,b and c are integers        $-1×5^{-3}$ | [1]   |
| **6)** Evaluate      a)  $121^{\frac{1}{2}}$     b)  $8^{\frac{1}{3}}$     c)  $216^{\frac{2}{3}}$ | [4]   |
|      d)  $25^{\frac{3}{2}}$ |  |
| **7)** Evaluate, giving your answer as an integer or simplified fraction      a)  $25^{-\frac{3}{2}}$     b)  $(\frac{2}{3})^{2}$     c)  $(\frac{1}{5})^{-1}$ | [3]   |
| **8)** Evaluate the following, giving your answer as a simplified fraction      a)  $(\frac{125}{64})^{\frac{2}{3}}$     b)  $(\frac{64}{27})^{-\frac{2}{3}}$ | [2]   |
| **9)** Give the following expression in index form      a)  $\sqrt{7}$     b)  $\sqrt[3]{2}$     c)  $\sqrt[5]{5}$ | [5]   |
|      d)  $\sqrt[3]{3^{2}}$     e)  $\frac{1}{\sqrt[3]{2^{2}}}$ |  |
| **10)** Show the following as a power of 3      a)  $9$     b)  $9^{3}$ | [2]   |
| **11)** Show the following as a power of 49        $\sqrt{7}$ | [1]   |

**Solutions for the assessment Indices Rules - Advanced**

|  |  |
| --- | --- |
| **1)**  a)  $\frac{1}{7}$ |      b)  $\frac{1}{36}$ |
|      c)  $\frac{1}{1000}$ | **2)**  $\frac{1}{2^{2}}$ |
| **3)**  $7^{-3}$ | **4)**  $\frac{4}{6^{4}}$ |
| **5)**  $-\frac{1}{5^{3}}$ |  |
| **6)**  a) 11 |      b) 2 |
|      c) 36 |      d) 125 |
| **7)**  a)  $\frac{1}{125}$ |      b)  $\frac{4}{9}$ |
|      c)  $5$ |  |
| **8)**  a)  $\frac{25}{16}$ |      b)  $\frac{9}{16}$ |
| **9)**  a)  $7^{\frac{1}{2}}$ |      b)  $2^{\frac{1}{3}}$ |
|      c)  $5^{\frac{1}{5}}$ |      d)  $3^{\frac{2}{3}}$ |
|      e)  $\frac{1}{2^{\frac{2}{3}}}or2^{-\frac{2}{3}}$ |  |
| **10)**  a)  $3^{2}$ |      b)  $3^{6}$ |
| **11)**  $49^{\frac{1}{4}}$ |  |