**Proportionality - Direct and Inverse**

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

|  |  |  |
| --- | --- | --- |
| Mark : | /8 | % |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1)** If  $n$ varies as  $m$ and  $n=49$ when  $m=7$. Find

|  |  |  |
| --- | --- | --- |
| a) the formula for  $n$ in terms of  $m$ |   |  |
|   |   |   |
| b) the value of  $n$ given  $m=12$ |   |  |
|   |   |   |
| c) the value of  $m$ given  $n=105$ |   |  |

 | [1]   |
| **2)** If  $z$ is proportional to the square of  $y$ and  $z=50$ when  $y=5$. Find

|  |  |  |
| --- | --- | --- |
| a) the formula for  $z$ in terms of  $y$ |   |  |
|   |   |   |
| b) the value of  $z$ given  $y=7$ |   |  |
|   |   |   |
| c) the value of  $y$ given  $z=162$ |   |  |

 | [1]   |
| **3)** If  $n$ varies as  $m^{3}$ and  $n=81$ when  $m=3$. Find

|  |  |  |
| --- | --- | --- |
| a) the formula for  $n$ in terms of  $m$ |   |  |
|   |   |   |
| b) the value of  $n$ given  $m=8$ |   |  |
|   |   |   |
| c) the value of  $m$ given  $n=648$ |   |  |

 | [1]   |
| **4)** If  $x$ varies directly as  $\sqrt{w}$ and  $x=18$ when  $w=9$. Find

|  |  |  |
| --- | --- | --- |
| a) the formula for  $x$ in terms of  $w$ |   |  |
|   |   |   |
| b) the value of  $x$ given  $w=64$ |   |  |
|   |   |   |
| c) the value of  $w$ given  $x=54$ |   |  |

 | [1]   |
| **5)** If  $n$ is inversely proportional to  $m$ and  $n=18$ when  $m=1$. Find

|  |  |  |
| --- | --- | --- |
| a) the formula for  $n$ in terms of  $m$ |   |  |
|   |   |   |
| b) the value of  $n$ given  $m=2$ |   |  |
|   |   |   |
| c) the value of  $m$ given  $n=3$ |   |  |

 | [1]   |
| **6)** If  $z$ is inversely proportional to  $y^{2}$ and  $z=4$ when  $y=2$. Find

|  |  |  |
| --- | --- | --- |
| a) the formula for  $z$ in terms of  $y$ |   |  |
|   |   |   |
| b) the value of  $z$ given  $y=6$ |   |  |
|   |   |   |
| c) the value of  $y$ given  $z=\frac{16}{81}$ |   |  |

 | [1]   |
| **7)** If  $c$ is inversely proportional to  $b^{3}$ and  $c=5$ when  $b=2$. Find

|  |  |  |
| --- | --- | --- |
| a) the formula for  $c$ in terms of  $b$ |   |  |
|   |   |   |
| b) the value of  $c$ given  $b=7$ |   |  |
|   |   |   |
| c) the value of  $b$ given  $c=\frac{1}{25}$ |   |  |

 | [1]   |
| **8)** If  $n$ varies inversely as  $\sqrt{m}$ and  $n=9$ when  $m=4$. Find

|  |  |  |
| --- | --- | --- |
| a) the formula for  $n$ in terms of  $m$ |   |  |
|   |   |   |
| b) the value of  $n$ given  $m=49$ |   |  |
|   |   |   |
| c) the value of  $m$ given  $n=1\frac{4}{5}$ |   |  |

 | [1]   |

**Solutions for the assessment Proportionality - Direct and Inverse**

|  |  |
| --- | --- |
| **1)** a)  $n=7m$   b)  $84$   c)  $15$ | **2)** a)  $z=2y^{2}$   b)  $98$   c)  $9$ |
| **3)** a)  $n=3m^{3}$   b)  $1536$   c)  $6$ | **4)** a)  $x$ = 6 $\sqrt{w}$   b)  $48$   c)  $81$ |
| **5)** a)  $n=\frac{18}{m}$   b)  $9$   c)  $6$ | **6)** a)  $z=\frac{16}{y^{2}}$   b)  $\frac{4}{9}$   c)  $9$ |
| **7)** a)  $c=\frac{40}{b^{3}}$   b)  $\frac{40}{343}$   c)  $10$ | **8)** a)  $n=\frac{18}{\sqrt{m}}$   b)  $2\frac{4}{7}$   c)  $100$ |