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| **Topic/Skill** | **Definition/Tips** | **Example**  **Topic: Proportion** |
| 1. Direct Proportion | If two quantities are in direct proportion, **as one increases**, the **other increases** by the **same percentage**.  If is directly proportional to , this can be written as  An equation of the form represents direct proportion, where  **is the constant of proportionality**. |  |
| 2. Inverse Proportion | If two quantities are inversely proportional, **as one increases**, the **other decreases** by the **same percentage**.  If is inversely proportional to , this can be written as  An equation of the form represents inverse proportion. |  |
| 3. Using proportionality formulae | **Direct**: **y = kx** or **yx**  **Inverse**: **y =**  or **y**  1. **Solve to find k** using the pair of values in the question.  2. **Rewrite the equation** using the k you have just found.  3. **Substitute the other given value** from the question in to the equation to **find the missing value**. | p is directly proportional to q.  When p = 12, q = 4.  Find p when q = 20.  1. p = kq  12 = k x 4  so k = 3  2. p = 3q  3. p = 3 x 20 = 60, so p = 60 |
| 4. Direct Proportion with powers | Graphs showing **direct proportion** can be written in the form  Direct proportion graphs will always start at the origin. |  |
| 5. Inverse Proportion with powers | Graphs showing **inverse proportion** can be written in the form  Inverse proportion graphs will never start at the origin. |  |

**Knowledge Organiser**