| Direct and Inverse Proportion Mark Scheme |  |  |
| :---: | :---: | :---: |
| 1 | 4 people $\times 2$ days $=8$ days of total work | [1] Determine total amount of work |
|  | for 2 people it would take 4 days | [1] Correct number of days |
| 2 | 3 litres $\div 12$ students $=0.25$ litres per student | [1] Find litres per student |
|  | $20 \times 0.25=5$ litres | [1] Correct amount of water |
| 3 | $3 \times 6=18$ hours of water | [1] Establish the correct relationship |
|  | for 6 walkers, $18 \div 6=3$ <br> They have 3 hrs worth of water | [1] Correct time |
| 4(a) | 4 people $\times 2$ hours $=8$ hours of work total | [1] Determine total amount of work |
|  | 1 hour each for 8 people | [1] Correct time |
| 4(b) | 6 builders $\times 80$ days $=480$ work days in total | [1] Determine total amount of work |
|  | $480 \div 16=30$ builders | [1] Correct number of builders required |
| 5 | $\begin{gathered} \text { speed } \times \text { time }=\text { distance } \\ 30 \mathrm{mph} \times 0.5 \mathrm{hrs}=15 \mathrm{miles} \end{gathered}$ | [1] Use of relation and correct distance |
|  | 15 miles $/ 60 \mathrm{mph}=0.25 \mathrm{hrs}=15 \mathrm{mins}$ | [1] Correct time Accept alternate methods |
| 6 | 300 men $\times 90$ days of food $=27,000$ days worth of food for one person | [1] Determine total amount of food |
|  | 300 men $\times 40$ days of food $=12,000$ days worth of food for one person used Amount of food left after 40 days $=27000-12000=$ 15000 | [1] Find first 40 days worth of food |
|  | 15000 days of food $\div 150$ men $=100$ days worth of food left | [1] Correct number of days left |
| 7 | 12 litres per minute $=720$ litres per hour $22 \mathrm{hrs} \times 720$ litres per $\mathrm{hr}=15840 \mathrm{l}$ needed | [1] Find total volume required |
|  | 5 litres per minute $=300$ litres per hour $15840 \mathrm{l} \div 300$ litres per $\mathrm{hr}=52.8 \mathrm{hrs}$ | [1] Correct new time at new flow rate. |
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