

## Q1. (2020)

| Q | Answer                                  | Mark | Comments |
|---|-----------------------------------------|------|----------|
| 2 | $\begin{pmatrix} 3 \\ -2 \end{pmatrix}$ | B1   |          |

## Q2. (2021)

| Question | Answer                                  | Mark | Comments |
|----------|-----------------------------------------|------|----------|
| 17       | $\begin{pmatrix} 5 \\ -8 \end{pmatrix}$ | B1   |          |

## Q3. (2022)

| Q  | Answer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Mark  | Comment                                                                                                                                                                                                                                                                                                                                                              |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 21 | $3\mathbf{a} + \mathbf{b} + \mathbf{a} + 6\mathbf{b}$ or $4\mathbf{a} + 7\mathbf{b}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | M1    | $\overrightarrow{EH}$<br>may be seen on diagram or as part of a longer vector sum                                                                                                                                                                                                                                                                                    |
|    | $2 \times \text{their } (4\mathbf{a} + 7\mathbf{b})$ or $8\mathbf{a} + 14\mathbf{b}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | M1dep | $\overrightarrow{FG}$<br>may be seen on diagram                                                                                                                                                                                                                                                                                                                      |
|    | Any correct path from $F$ to $E$<br>eg<br>their $(8\mathbf{a} + 14\mathbf{b}) + (-2\mathbf{a} - 15\mathbf{b})$<br>or<br>their $(8\mathbf{a} + 14\mathbf{b}) - (2\mathbf{a} + 15\mathbf{b})$<br>or<br>$(-2\mathbf{a} - 15\mathbf{b}) + (3\mathbf{a} + \mathbf{b}) + (\mathbf{a} + 6\mathbf{b})$<br>or $2\mathbf{a} - 8\mathbf{b}$<br>and<br>their $(8\mathbf{a} + 14\mathbf{b}) + \text{their } (2\mathbf{a} - 8\mathbf{b}) + (-\mathbf{a} - 6\mathbf{b}) + (-3\mathbf{a} - \mathbf{b})$<br>or their $(8\mathbf{a} + 14\mathbf{b}) + \text{their } (2\mathbf{a} - 8\mathbf{b}) + \text{their } (-4\mathbf{a} - 7\mathbf{b})$ | M1dep | $\overrightarrow{FG} + \overrightarrow{GE}$<br>$\overrightarrow{FG} - \overrightarrow{EG}$<br>oe $\overrightarrow{GE} + \overrightarrow{ED} + \overrightarrow{DH}$<br>oe $\overrightarrow{GH}$<br>oe $\overrightarrow{FG} + \overrightarrow{GH} + \overrightarrow{HD} + \overrightarrow{DE}$<br>oe $\overrightarrow{FG} + \overrightarrow{GH} + \overrightarrow{HE}$ |
|    | $6\mathbf{a} - \mathbf{b}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | A1    | SC3 $-6\mathbf{a} + \mathbf{b}$ or $\mathbf{b} - 6\mathbf{a}$                                                                                                                                                                                                                                                                                                        |
|    | <b>Additional Guidance</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |       |                                                                                                                                                                                                                                                                                                                                                                      |
|    | Missing brackets and incorrect addition or subtraction signs can be recovered for all four marks<br>eg $8\mathbf{a} + 14\mathbf{b} - 2\mathbf{a} + 15\mathbf{b}$ recovered to $6\mathbf{a} - \mathbf{b}$<br>Condone missing brackets for the third mark<br>eg $8\mathbf{a} + 14\mathbf{b} - 2\mathbf{a} + 15\mathbf{b}$ and answer $6\mathbf{a} + 29\mathbf{b}$                                                                                                                                                                                                                                                             |       | M1M1M1A1<br>M1M1M1A0                                                                                                                                                                                                                                                                                                                                                 |
|    | To receive marks expressions must be in terms of $\mathbf{a}$ and $\mathbf{b}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |                                                                                                                                                                                                                                                                                                                                                                      |
|    | Allow subtractions shown in vertical form<br>eg $8\mathbf{a} + 14\mathbf{b}$<br>$- 2\mathbf{a} + 15\mathbf{b}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       | M1M1M1                                                                                                                                                                                                                                                                                                                                                               |

## Q4. (2024)

| Q | Answer                                                                          | Mark | Comments |
|---|---------------------------------------------------------------------------------|------|----------|
| 3 | $\begin{pmatrix} 3 \\ -7 \end{pmatrix}$                                         | B1   |          |
|   | <b>Additional Guidance</b>                                                      |      |          |
|   | Condone + sign and/or fraction line eg $\begin{pmatrix} +3 \\ -7 \end{pmatrix}$ |      | B1       |
|   | $(3, -7)$                                                                       |      | B0       |