| | | | | | |
|---|---|---|---|---|---|
| **17** (a) | eg $3x^2-2x+18x-12$ $(=3x^2+16x-12)$<br>**or** $x^2+6x+6x+36$ $(=x^2+12x+36)$<br>(allow in a table with no sign indicating +) | | 3 | M1 | for a correct method to expand two brackets with at least 3 terms correct out of 4 terms seen (or 2 terms correct out of 3 terms seen) |
| | eg $3x^3+36x^2+108x-2x^2-24x-72$ or<br>$3x^3+18x^2+18x^2+108x-2x^2-12x-12x-72$<br>**or**<br>$3x^3+16x^2-12x+18x^2+96x-72$ or<br>$3x^3-2x^2+18x^2-12x+18x^2-12x+108x-72$ | | | M1ft | ft dep on M1 and a quadratic for a correct method to multiply by the 3rd bracket allow one further error |
| | *Correct answer scores full marks (unless from obvious incorrect working)* | $3x^3+34x^2+84x-72$ | | A1 | If no working shown then award B2 for 3 out of a maximum of 4 terms correct |
| | ***ALTERNATIVE*** | | | | |
| | $3x^3-2x^2+18x^2-12x+18x^2-12x+108x-72$ | | 3 | M2 | For a complete expansion with 8 terms present of which 4 are correct<br>(M1 for 4 correct terms from any number of terms) |
| | | $3x^3+34x^2+84x-72$ | | A1 | |
| | See next page for 17(b) | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **17** (b) | $w^2 = \frac{e+g}{ef-d}$ | | 4 | M1 | for removing square root |
| | $w^2ef - w^2d = e + g$ oe | | | M1 | for multiplying by denominator and expanding in a correct equation |
| | $w^2ef - e = g + w^2d$ oe | | | M1ft | ft their equation dep on 2 terms in *e* and two other terms<br><br>for gathering terms in *e* on one side and other terms the other side |
| | *Correct answer scores full marks (unless from obvious incorrect working)* | $e = \frac{g+w^2d}{w^2f-1}$ | | A1 | oe eg $e = \frac{-g-w^2d}{1-w^2f}$, $e = -\frac{g+w^2d}{1-w^2f}$ oe<br><br>must see *e* = on answer line or in working. |
| | | | | | **Total 7 marks** |

| | | | | |
|---|---|---|---|---|
| **18** | | **C** | 3 | B1 check diagrams |
| | | **F** | | B1 check diagrams |
| | | **A** | | B1 check diagrams |
| | | | | **Total 3 marks** |