| Q | Marking instructions | AO | Marks | Typical solution |
|---|---|---|---|---|
| **5(a)** | Obtains 16<br>Not incorrectly labelled | 1.1b | B1 | $(2+5x)^4 = 16+160x+600x^2$<br>$+1000x^3+625x^4$<br>$A$ = 16<br>$B$ = 600 |
| | Obtains 600<br>Not incorrectly labelled | 1.1b | B1 | |
| | **Subtotal** | | **2** | |

| Q | Marking instructions | AO | Marks | Typical solution |
|---|---|---|---|---|
| **5(b)** | Obtains the expansion of<br>$(2-5x)^4 =$<br>$A-160x+Bx^2-1000x^3+625x^4$<br>Accept $A$ and $B$ unsubstituted or their $A$ and $B$<br>Or<br>Uses a valid method and obtains one of $C=320$ or $D=2000$ | 1.1a | M1 | $(2+5x)^4-(2-5x)^4$<br>$=16+160x+600x^2+1000x^3+625x^4$<br>$-(16-160x+600x^2-1000x^3+625x^4)$<br>$=320x+2000x^3$ |
| | Completes reasoned argument to show<br>$(2+5x)^4-(2-5x)^4=320x+2000x^3$<br>Accept $A$ and $B$ unsubstituted or their $A$ and $B$<br>Must finish with $320x+2000x^3$ don't accept just C=320 and D = 2000 | 2.1 | R1F | |
| | **Subtotal** | | **2** | |

| Q | Marking instructions | AO | Marks | Typical solution |
|---|---|---|---|---|
| 5(c) | Integrates one term correctly<br>Accept $C$ and $D$ unsubstituted or their $C$ and $D$<br>Or<br>Uses reverse of chain rule to obtain at least one term of the form<br>$P(2 \pm 5x)^5$, $P = \pm\frac{1}{5}$ or $\pm\frac{1}{25}$ | 1.1a | M1 | $\int\left((2+5x)^4-(2-5x)^4\right)\mathrm{d}x$<br>$=\int\left(320x+2000x^3\right)\mathrm{d}x$<br>$=160x^2+500x^4+c$ |
| | Obtains $\frac{320}{2}x^2+\frac{2000}{4}x^4+c$<br>FT $C$ and $D$ unsubstituted or their $C$ and $D$<br>Or<br>$\frac{(2+5x)^5}{5\times5}+\frac{(2-5x)^5}{5\times5}+c$<br>Condone missing $+c$ | 1.1b | A1F | |
| | **Subtotal** | | **2** | |

| | | | | |
|---|---|---|---|---|
| | **Question 5 Total** | | **6** | |