EXPANDING SINGLE BRACKET

Answer all of these questions. Remember to show your working out in all questions.

MAIN QUESTIONS

1. Expand $2x(x^2 + 3x)$
2. Expand $3y(2y^2 - 4)$
3. Expand $-4a(a^3 + 2a)$
4. Expand $5b(3b^2 - b + 2)$
5. Expand $-2c(4c^3 - 3c^2)$
6. Expand $7d(d^4 + 2d^2 - 1)$
7. Expand $-3e(5e^3 - 2e + 4)$
8. Expand $4f(2f^5 - 3f^3 + f)$
9. Expand $-5g(g^4 + 4g^2 - 2g)$
10. Expand $6h(3h^3 - 2h^2 + 5h - 1)$
11. Expand $-7j(4j^4 - j^3 + 3j)$
12. Expand $8k(2k^5 + 3k^3 - 4k^2 + k)$
13. Expand $-9m(m^4 - 2m^3 + 5m^2)$
14. Expand $10n(3n^6 - n^4 + 2n^2 - 1)$
15. Expand $-11p(5p^3 - 4p^2 + 3p - 2)$
16. Expand $12q(2q^7 + q^5 - 3q^3 + q)$
17. Expand $-13r(r^6 - 2r^4 + 4r^2 - 1)$
18. Expand $14s(4s^5 - 3s^3 + 2s^2 - s)$
19. Expand $-15t(5t^4 - 2t^3 + t^2 - 3t)$
20. Expand $16u(3u^8 - u^6 + 4u^4 - 2u^2)$
21. Expand $-17v(2v^7 + 5v^5 - 3v^3 + v)$
22. Expand $18w(4w^6 - 2w^4 + 6w^2 - 1)$
23. Expand $-19x(3x^5 + x^3 - 4x^2 + 2x)$
24. Expand $20y(5y^4 - 3y^3 + 2y^2 - y + 1)$

25. Expand $-21z(4z^6 - 2z^4 + 5z^3 - 3z)$

26. Expand $22a(3a^7 + 2a^5 - a^3 + 4a)$

27. Expand $-23b(5b^4 - 4b^3 + 3b^2 - 2b + 1)$

28. Expand $24c(2c^8 + 3c^6 - c^4 + 5c^2)$

29. Expand $-25d(4d^5 - 3d^4 + 2d^3 - d^2 + d)$

30. Expand $26e(3e^7 + 5e^5 - 2e^3 + 4e - 1)$

MASTER QUESTIONS

M1. A square's side length is increased by x metres. If the original side was 3x metres, find the expanded expression for the new area.

M2. A rectangular garden has length 4y metres and width $(y^2 + 2)$ metres. Calculate the expanded area expression.

M3. The volume of a cube is given by $(\text{side length})^3$. If the side is $(2z + 1)$ metres, expand to find the volume expression.

M4. A triangle's area is ½ × base × height. If base = 3a and height = $(a^2 + 2a)$, find the expanded area expression.

M5. The cost of x items is given by $x(2x^2 + 5x - 3)$ pounds. Expand this expression.

M6. A car travels at speed $(3v + 2)$ mph for (v^2) hours. Expand the distance expression.

M7. The perimeter of a regular pentagon is 5 times the side length. If side = $(4w^2 - w)$, expand the perimeter expression.

M8. A cylinder's surface area is $2\pi r(r + h)$. If $r = 2x$ and $h = (x^2 + 3)$, expand the expression (ignoring π).

M9. The profit from selling n items is $n(5n^2 - 3n + 2)$ pounds. Expand this profit expression.

M10. A room's floor area is length × width. If length = $(3y + 1)$ and width = $(2y^2 - y)$, expand the area expression.