

Use the Binomial Theorem and Pascal's Triangle to write each binomial expansion.

1) $(x + 4)^3$

1 x^3 4^0	3 x^2 4^1	3 x^1 4^2	1 x^0 4^3
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$x^3 + 12x^2 + 48x + 64$

2) $(x - 3)^4$

1 x^4 $(-3)^0$	4 x^3 $(-3)^1$	6 x^2 $(-3)^2$	4 x^1 $(-3)^3$	1 x^0 $(-3)^4$
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 $x^4 - 12x^3 + 54x^2 - 108x + 81$

3) $(x + 2)^5$

1 x^5 2^0	5 x^4 2^1	10 x^3 2^2	10 x^2 2^3	5 x^1 2^4	1 x^0 2^5
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 $x^5 + 10x^4 + 40x^3 + 80x^2 + 80x + 32$

4) $(x - 6)^3$

1 x^3 $(-6)^0$	3 x^2 $(-6)^1$	3 x^1 $(-6)^2$	1 x^0 $(-6)^3$
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 $x^3 - 18x^2 + 108x - 216$

5) $(x + 5)^3$

1 x^3 5^0	3 x^2 5^1	3 x^1 5^2	1 x^0 5^3
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 $x^3 + 15x^2 + 75x + 125$

6) $(x - 2)^4$

1 x^4 $(-2)^0$	4 x^3 $(-2)^1$	6 x^2 $(-2)^2$	4 x^1 $(-2)^3$	1 x^0 $(-2)^4$
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 $x^4 - 8x^3 + 24x^2 - 32x + 16$

7) $(x + 1)^5$

1 x^5 0^0	5 x^4 1^1	10 x^3 1^2	10 x^2 1^3	5 x^1 1^4	1 x^0 1^5
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 $x^5 + 5x^4 + 10x^3 + 10x^2 + 5x + 1$

8) $(x - 4)^4$

1 x^4 $(-4)^0$	4 x^3 $(-4)^1$	6 x^2 $(-4)^2$	4 x^1 $(-4)^3$	1 x^0 $(-4)^4$
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 $x^4 - 16x^3 + 96x^2 - 256x + 256$

9) $(2x + 3)^3$

1 $(2x)^3$ -2^0	3 $(2x)^2$ 3^1	3 $(2x)^1$ 3^2	1 $(2x)^0$ 3^3
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 $8x^3 + 36x^2 + 54x + 27$

10) $(3x - 2)^3$

1 $(3x)^3$ $(-2)^0$	3 $(3x)^2$ $(-2)^1$	3 $(3x)^1$ $(-2)^2$	1 $(3x)^0$ $(-2)^3$
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 $27x^3 - 54x^2 + 36x - 8$