

Solutions – Binomial Theorem (A)

Expand $(-2x + 2)^4$.

$$16x^4 - 64x^3 + 96x^2 - 64x + 16$$

Expand $(-3x - 1)^4$.

$$81x^4 + 108x^3 + 54x^2 + 12x + 1$$

Expand $(3x + 2)^5$.

$$243x^5 + 810x^4 + 1080x^3 + 720x^2 + 240x + 32$$

Expand $(2x + 3)^3$.

$$8x^3 + 36x^2 + 54x + 27$$

Expand $(3x + 6)^5$.

$$243x^5 + 2430x^4 + 9720x^3 + 19440x^2 + 19440x + 7776$$

Expand $(-2x + 6)^3$.

$$-8x^3 + 72x^2 - 216x + 216$$

Solutions – Binomial Theorem (B)

Expand $(3x + 4)^3$.

$$27x^3 + 108x^2 + 144x + 64$$

Expand $(-x - 3)^5$.

$$x^5 - 15x^4 - 90x^3 - 270x^2 - 405x - 243$$

Expand $(x - 3)^3$.

$$x^3 - 9x^2 + 27x - 27$$

Expand $(3x - 6)^5$.

$$243x^5 - 2430x^4 + 9720x^3 - 19440x^2 + 19440x - 7776$$

Expand $(x - 2)^4$.

$$x^4 - 8x^3 + 24x^2 - 32x + 16$$

Expand $(3x + 6)^3$.

$$27x^3 + 162x^2 + 324x + 216$$

Solutions – Binomial Theorem (C)

Expand $(-x + 5)^3$.

$$x^3 + 15x^2 - 75x + 125$$

Expand $(-2x - 5)^5$.

$$-32x^5 - 400x^4 - 2000x^3 - 5000x^2 - 6250x - 3125$$

Expand $(x + 1)^5$.

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

Expand $(-2x + 4)^5$.

$$-32x^5 + 320x^4 - 1280x^3 + 2560x^2 - 2560x + 1024$$

Expand $(3x + 2)^5$.

$$243x^5 + 810x^4 + 1080x^3 + 720x^2 + 240x + 32$$

Expand $(-x + 3)^5$.

$$x^5 + 15x^4 - 90x^3 + 270x^2 - 405x + 243$$

Solutions – Binomial Theorem (D)

Expand $(3x - 3)^5$.

$$243x^5 - 1215x^4 + 2430x^3 - 2430x^2 + 1215x - 243$$

Expand $(-x + 2)^5$.

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

Expand $(-x + 1)^5$.

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

Expand $(-3x + 2)^5$.

$$-243x^5 + 810x^4 - 1080x^3 + 720x^2 - 240x + 32$$

Expand $(3x - 5)^3$.

$$27x^3 - 135x^2 + 225x - 125$$

Expand $(-3x + 1)^5$.

$$-243x^5 + 405x^4 - 270x^3 + 90x^2 - 15x + 1$$

Solutions – Binomial Theorem (E)

Expand $(-2x - 2)^5$.

$$-32x^5 - 160x^4 - 320x^3 - 320x^2 - 160x - 32$$

Expand $(x + 1)^4$.

$$x^4 + 4x^3 + 6x^2 + 4x + 1$$

Expand $(2x - 2)^5$.

$$32x^5 - 160x^4 + 320x^3 - 320x^2 + 160x - 32$$

Expand $(-3x - 1)^3$.

$$-27x^3 - 27x^2 - 9x - 1$$

Expand $(-3x - 1)^5$.

$$-243x^5 - 405x^4 - 270x^3 - 90x^2 - 15x - 1$$

Expand $(-2x + 4)^4$.

$$16x^4 - 128x^3 + 384x^2 - 512x + 256$$

Solutions – Binomial Theorem (F)

Expand $(3x + 2)^4$.

$$81x^4 + 216x^3 + 216x^2 + 96x + 16$$

Expand $(-2x - 3)^3$.

$$-8x^3 - 36x^2 - 54x - 27$$

Expand $(-3x - 6)^4$.

$$81x^4 + 648x^3 + 1944x^2 + 2592x + 1296$$

Expand $(3x + 5)^4$.

$$81x^4 + 540x^3 + 1350x^2 + 1500x + 625$$

Expand $(-2x - 2)^5$.

$$-32x^5 - 160x^4 - 320x^3 - 320x^2 - 160x - 32$$

Expand $(-3x - 3)^3$.

$$-27x^3 - 81x^2 - 81x - 27$$

Solutions – Binomial Theorem (G)

Expand $(2x + 6)^3$.

$$8x^3 + 72x^2 + 216x + 216$$

Expand $(2x - 5)^3$.

$$8x^3 - 60x^2 + 150x - 125$$

Expand $(3x - 3)^3$.

$$27x^3 - 81x^2 + 81x - 27$$

Expand $(-2x + 2)^4$.

$$16x^4 - 64x^3 + 96x^2 - 64x + 16$$

Expand $(-3x + 4)^4$.

$$81x^4 - 432x^3 + 864x^2 - 768x + 256$$

Expand $(3x - 2)^3$.

$$27x^3 - 54x^2 + 36x - 8$$

Solutions – Binomial Theorem (H)

Expand $(x + 3)^5$.

$$x^5 + 15x^4 + 90x^3 + 270x^2 + 405x + 243$$

Expand $(-x + 5)^3$.

$$x^3 + 15x^2 - 75x + 125$$

Expand $(-3x - 4)^4$.

$$81x^4 + 432x^3 + 864x^2 + 768x + 256$$

Expand $(x - 2)^5$.

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

Expand $(-x + 5)^3$.

$$x^3 + 15x^2 - 75x + 125$$

Expand $(-x + 2)^4$.

$$x^4 - 8x^3 + 24x^2 - 32x + 16$$

Solutions – Binomial Theorem (I)

Expand $(2x + 1)^3$.

$$8x^3 + 12x^2 + 6x + 1$$

Expand $(x + 3)^4$.

$$x^4 + 12x^3 + 54x^2 + 108x + 81$$

Expand $(3x - 1)^3$.

$$27x^3 - 27x^2 + 9x - 1$$

Expand $(-x - 3)^5$.

$$x^5 - 15x^4 - 90x^3 - 270x^2 - 405x - 243$$

Expand $(-2x + 4)^3$.

$$-8x^3 + 48x^2 - 96x + 64$$

Expand $(-3x - 5)^5$.

$$-243x^5 - 2025x^4 - 6750x^3 - 11250x^2 - 9375x - 3125$$

Solutions – Binomial Theorem (J)

Expand $(-x + 5)^3$.

$$x^3 + 15x^2 - 75x + 125$$

Expand $(2x - 4)^3$.

$$8x^3 - 48x^2 + 96x - 64$$

Expand $(-2x + 1)^4$.

$$16x^4 - 32x^3 + 24x^2 - 8x + 1$$

Expand $(3x - 4)^3$.

$$27x^3 - 108x^2 + 144x - 64$$

Expand $(-x - 2)^5$.

$$x^5 - 10x^4 - 40x^3 - 80x^2 - 80x - 32$$

Expand $(-3x + 6)^3$.

$$-27x^3 + 162x^2 - 324x + 216$$