

Algebra 2

Worksheet 4.2

Use Pascal's Triangle to simplify.

1. $(x + 3)^3$

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

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

2. $(x - 2)^4$

$$1(x)^4 + 4(x)^3(-2)^1 + 6(x)^2(-2)^2 + 4(x)^1(-2)^3 + 1(-2)^4$$

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

3. $(x + 4)^3$

$$1(x)^3 + 3(x)^2(4)^1 + 3(x)^1(4)^2 + 1(4)^3$$

$$x^3 + 12x^2 + 48x + 64$$

4. $(x - 3)^4$

$$1(x)^4 + 4(x)^3(-3)^1 + 6(x)^2(-3)^2 + 4(x)^1(-3)^3 + 1(-3)^4$$

$$x^4 - 12x^3 + 54x^2 - 36x + 81$$

5. $(x + 2)^5$

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

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

6. $(x - 2)^5$

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

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

7. $(2x - 1)^3$

$$1(2x)^3 + 3(2x)^2(-1)^1 + 3(2x)^1(-1)^2 + 1(-1)^3$$

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

8. $(3x + 2)^4$

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

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

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

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

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

10. $(2x + 4)^5$

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

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