

EXPANSION

A DISTRIBUTIVE LAW 1

A.1 EXPANDING WITH ADDITION: LEVEL 1

Ex 1: Expand and simplify:

$$5(x + 3) = \boxed{}$$

Ex 2: Expand and simplify:

$$2(3 + x) = \boxed{}$$

Ex 3: Expand and simplify:

$$3(2x + 2) = \boxed{}$$

Ex 4: Expand and simplify:

$$2(5 + 3x) = \boxed{}$$

A.2 EXPANDING WITH ADDITION: LEVEL 2

Ex 5: Expand and simplify:

$$x(x + 1) = \boxed{}$$

Ex 6: Expand and simplify:

$$x(2x + 3) = \boxed{}$$

Ex 7: Expand and simplify:

$$2x(x + 2) = \boxed{}$$

Ex 8: Expand and simplify:

$$3x(2x + 5) = \boxed{}$$

A.3 EXPANDING WITH ADDITION: LEVEL 3

Ex 9: Expand and simplify:

$$2(x + 1) + x = \boxed{}$$

Ex 10: Expand and simplify:

$$2(2x + 3) - 3x = \boxed{}$$

Ex 11: Expand and simplify:

$$x(x + 2) - x^2 = \boxed{}$$

Ex 12: Expand and simplify:

$$2x(3x + 2) - 8x = \boxed{}$$

A.4 EXPANDING WITH SUBTRACTION: LEVEL 1

Ex 13: Expand and simplify:

$$2(x - 2) = \boxed{}$$

Ex 14: Expand and simplify:

$$3(5x - 6) = \boxed{}$$

Ex 15: Expand and simplify:

$$2(3 - x) = \boxed{}$$

Ex 16: Expand and simplify:

$$4(3 - 5x) = \boxed{}$$

A.5 EXPANDING WITH SUBTRACTION: LEVEL 2

Ex 17: Expand and simplify:

$$x(x - 1) = \boxed{}$$

Ex 18: Expand and simplify:

$$x(2x - 3) = \boxed{}$$

Ex 19: Expand and simplify:

$$2x(x - 2) = \boxed{}$$

Ex 20: Expand and simplify:

$$3x(2x - 5) = \boxed{}$$

A.6 EXPANDING WITH SUBTRACTION: LEVEL 3

Ex 21: Expand and simplify

$$2(x - 2) + 4 = \boxed{}$$

Ex 22: Expand and simplify

$$4(x - 3) - 5x = \boxed{}$$

Ex 23: Expand and simplify

$$x(x - 2) + 6 = \boxed{}$$

Ex 24: Expand and simplify

$$2(x - 2) + 3x - 10 = \boxed{}$$

A.7 EXPANDING: LEVEL 4

Ex 25: Expand and simplify:

$$x(x^2 - x + 1) = \boxed{}$$

Ex 26: Expand and simplify:

$$2x(-x^3 + 2x - 2) = \boxed{}$$

Ex 27: Expand and simplify:

$$-2(x^2 - 2x - 3) = \boxed{}$$

Ex 28: Expand and simplify:

$$-2x(-x^2 - 3x + 2) = \boxed{}$$

A.8 EXPANDING: LEVEL 4

Ex 29: Expand and simplify:

$$2(x + 2) - x(x + 2) = \boxed{}$$

Ex 30: Expand and simplify:

$$-2x(x - 4) + x(x - 3) = \boxed{}$$

Ex 31: Expand and simplify:

$$2x - 2(4 - x + x^2) = \boxed{}$$

Ex 32: Expand and simplify:

$$x - x(x^2 + x + 1) = \boxed{}$$

B DISTRIBUTIVE LAW 2

B.1 EXPANDING WITH ADDITION

Ex 33: Expand and simplify

$$(x + 2)(x + 1) = \boxed{}$$

Ex 34: Expand and simplify

$$(x + 3)(x + 4) = \boxed{}$$

Ex 35: Expand and simplify

$$(x + 4)(2x + 2) = \boxed{}$$

Ex 36: Expand and simplify

$$(2x + 1)(3x + 2) = \boxed{}$$

Ex 37: Expand and simplify

$$(x + 1)^2 = \boxed{}$$

B.2 EXPANDING WITH SUBTRACTION

Ex 38: Expand and simplify

$$(x + 2)(x - 1) = \boxed{}$$

Ex 39: Expand and simplify

$$(x - 1)(x - 2) = \boxed{}$$

Ex 40: Expand and simplify

$$(x + 3)(x - 2) = \boxed{}$$

Ex 41: Expand and simplify

$$(2x + 1)(1 - 2x) = \boxed{}$$

Ex 42: Expand and simplify

$$(-1 + 2x)(1 - x) = \boxed{}$$

B.3 EXPANDING

Ex 43: Expand and simplify:

$$(x - 5)(2x + 7) = \boxed{}$$

Ex 44: Expand and simplify:

$$(4x + 1)(x - 6) = \boxed{}$$

Ex 45: Expand and simplify:

$$(2x - 3)(-x + 4) = \boxed{}$$

Ex 46: Expand and simplify:

$$(-x + 2)(3x - 4) = \boxed{}$$

C DIFFERENCE OF TWO SQUARES

C.1 EXPANDING: LEVEL 1

Ex 47: Expand and simplify

$$(x + 1)(x - 1) = \boxed{}$$

Ex 48: Expand and simplify

$$(x - 3)(x + 3) = \boxed{}$$

Ex 49: Expand and simplify

$$(4 - x)(4 + x) = \boxed{}$$

Ex 50: Expand and simplify

$$(5 + x)(5 - x) = \boxed{}$$

C.2 EXPANDING: LEVEL 2

Ex 51: Expand and simplify

$$(2x - 4)(2x + 4) = \boxed{}$$

Ex 52: Expand and simplify

$$(x + \sqrt{2})(x - \sqrt{2}) = \boxed{}$$

Ex 53: Expand and simplify

$$\left(\frac{1}{2} - x\right)\left(\frac{1}{2} + x\right) = \boxed{}$$

Ex 54: Expand and simplify

$$\left(\frac{x}{2} - 1\right)\left(\frac{x}{2} + 1\right) = \boxed{}$$

D BINOMIAL EXPANSION

D.1 EXPANDING PERFECT SQUARE BINOMIALS (ADDITION)

Ex 55: Expand and simplify

$$(x + 2)^2 = \boxed{}$$

Ex 56: Expand and simplify

$$(3 + x)^2 = \boxed{}$$

Ex 57: Expand and simplify

$$(2x + 1)^2 = \boxed{}$$

Ex 58: Expand and simplify

$$(2 + 3x)^2 = \boxed{}$$

D.2 EXPANDING PERFECT SQUARE BINOMIALS (SUBTRACTION)

Ex 59: Expand and simplify

$$(x - 2)^2 = \boxed{}$$

Ex 60: Expand and simplify

$$(3 - x)^2 = \boxed{}$$

Ex 61: Expand and simplify

$$(2x - 1)^2 = \boxed{}$$

Ex 62: Expand and simplify

$$(2 - 3x)^2 = \boxed{}$$

D.3 EXPANDING PERFECT CUBE BINOMIALS (ADDITION)

Ex 63: Expand and simplify

$$(x + 1)^3 = \boxed{}$$

Ex 64: Expand and simplify

$$(x + 3)^3 = \boxed{}$$

Ex 65: Expand and simplify

$$(2x + 2)^3 = \boxed{}$$

Ex 66: Expand and simplify

$$(2x + 3)^3 = \boxed{}$$

D.4 EXPANDING PERFECT CUBE BINOMIALS (SUBTRACTION)

Ex 67: Expand and simplify

$$(x - 1)^3 = \boxed{}$$

Ex 68: Expand and simplify

$$(x - 2)^3 = \boxed{}$$

Ex 69: Expand and simplify

$$(3 - x)^3 = \boxed{}$$

Ex 70: Expand and simplify

$$(2x - 1)^3 = \boxed{}$$