Expand a Term over a Single Bracket including Powers

Maths

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Expand a Term over a Single Bracket including Powers

1. Expand the brackets.

a) $y(y + 5)$

b) $m(3m - 4)$

c) $4p(5 + 3p)$

d) $2a(8-3a)$

2. Alex is expanding $x(x^2 + 7)$

$$x \times x^2 \equiv x^2$$
$$x \times 7 \equiv 7x$$
$$x(x^2 + 7) \equiv x^2 + 7x$$

What mistake has she made?

3. Expand the brackets.

a) $e(e^2 + 5)$

b) $2y^2(y - 3)$

c) $r(5 - 6r^2)$

d) $5x^2(3x + 7)$

4. Fill in the blanks.

a) $3w(w^2 + \boxed{}) \equiv 3w^3 + 27w$

b) $4a(\boxed{} - 5) \equiv 8a^3 - 20a$

c) $\boxed{}(5g - 3h) \equiv 15g^2 - \boxed{}$

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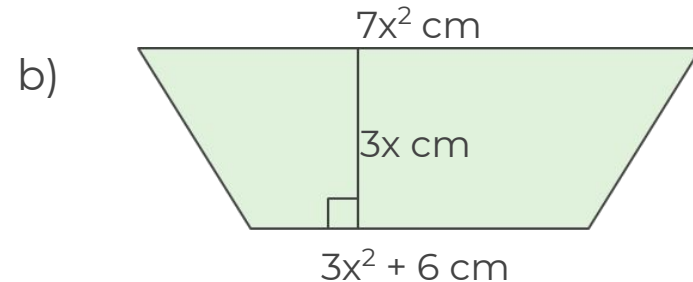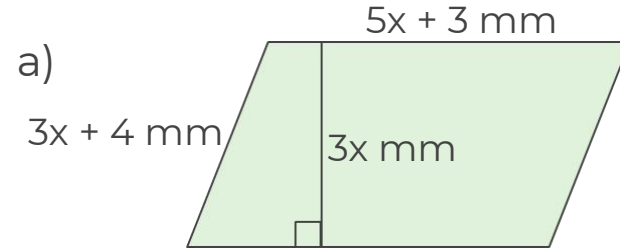5. Expand and simplify the expressions.

a) $w(3w - 5) + 4$

b) $t(t^2 + 35) - 7t$

c) $5m(3-m) + 3m^2 + 2m$

d) $3x^2(5x + 3) - 3x + 6$

6. Find an expression to represent the area of the shapes below.

a)

5x + 3 mm

3x + 4 mm

3x mm

b)

$7x^2$ cm

3x cm

$3x^2$ + 6 cm

Answers

Expand a Term over a Single Bracket including Powers

1. Expand the brackets.

a) $y(y + 5) \equiv y^2 + 5y$

b) $m(3m - 4) \equiv 3m^2 - 4m$

c) $4p(5 + 3p) \equiv 20p + 12p^2$

d) $2a(8-3a) \equiv 16a - 6a^2$

2. Alex is expanding $x(x^2 + 7)$

$$x \times x^2 \equiv x^2$$
$$x \times 7 \equiv 7x$$
$$x(x^2 + 7) \equiv x^2 + 7x$$

What mistake has she made?

$x \times x^2 \equiv x^3$, not x^2

3. Expand the brackets.

a) $e(e^2 + 5) \equiv e^3 + 5e$

b) $2y^2(y - 3) \equiv 2y^3 - 6y^2$

c) $r(5 - 6r^2) \equiv 5r - 6r^3$

d) $5x^2(3x + 7) \equiv 15x^3 + 35x^2$

4. Fill in the blanks.

a) $3w(w^2 + \boxed{9}) \equiv 3w^3 + 27w$

b) $4a(\boxed{2a^2} - 5) \equiv 8a^3 - 20a$

c) $\boxed{3g}(5g - 3h) \equiv 15g^2 - \boxed{9gh}$

Expand a Term over a Single Bracket including Powers

5. Expand and simplify the expressions.
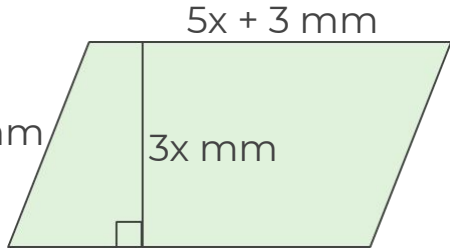
a) $w(3w - 5) + 4 \equiv 3w^2 - 5w + 4$

b) $t(t^2 + 35) - 7t \equiv t^3 + 28t$

c) $5m(3-m) + 3m^2 + 2m \equiv 17m - 2m^2$

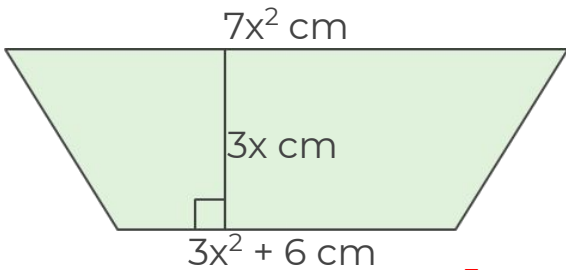d) $3x^2(5x + 3) - 3x + 6 \equiv 15x^3 + 9x^2 - 3x + 6$

6. Find an expression to represent the area of the shapes below.

a)

5x + 3 mm

3x + 4 mm

3x mm

Area = $(15x^2 + 9x)$ mm^2

b)

7x^2 cm

3x cm

3x^2 + 6 cm

Area = $(15x^3 + 9x)$ cm^2