Year 9 Algebraic Expressions – Foundation

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Answers and worked solutions · 10 questions

A. Algebra skills

1. $p^2 - p - 2$

Multiply every term by every term

$p^2 + p - 2p - 2$

Collect the p terms: $p^2 - p - 2$

2. $a^2 + 11a + 18$

Multiply every term by every term

$a^2 + 9a + 2a + 18$

Collect the a terms: $a^2 + 11a + 18$

3. $t^2 + 10t + 25$

Write it as $(t + 5)(t + 5)$. Multiply every term by every term

$t^2 + 5t + 5t + 25$

Collect the t terms: $t^2 + 10t + 25$

4. $5x^4$

Divide the numbers: $30 \div 6 = 5$

Subtract the indices: $7 - 3 = 4$

5. $24m^{10}$

Multiply the numbers: $4 \times 6 = 24$

Add the indices: $5 + 5 = 10$

6. $-2a^2$

Divide first: $24a^3 \div 4a = 6a^2$

Then subtract: $6a^2 - 8a^2 = -2a^2$

7. -18

Substitute $a = -2$ and $b = -4$

Brackets, then indices, then × and ÷, then + and −

$= -18$

8. $3n/2$

Divide the numbers by their HCF 6: $18/12 = 3/2$

Subtract the indices: $n^3 \div n^2 = n$

9. $\sqrt{(n + 7)}$

Start with n and follow the steps in order

$\sqrt{(n + 7)}$

10. $x^2 + 24x + 144$ cm^2

Side with the border $= x + 6 + 6 = x + 12$

Area $= (x + 12)^2$

$= x^2 + 24x + 144$ cm^2