

Algebraic Factorisation

Extracting Common Factors

I Do

Factorise $18x^2y - 24xy^2$

We Do

Factorise $12a^2b - 16ab^2$

You Do

Factorise $21m^2n - 14mn^2$

Challenge

Factorise $24x^3y^2 - 16x^2y^3 + 8x^2y^2$

Practice Perfect

1) Factorise $10x^2y - 15xy$

2) Factorise $14a^2b^2 + 21ab^2$

3) Factorise $8p^3q - 12p^2q^2$

4) Factorise $25m^2n^2 - 15m^3n$

5) Factorise $18c^3d^2 + 27c^2d^3$

6) Factorise $36x^2y^3 - 24x^3y^2$

7) Factorise $22u^4v - 33u^2v^2$

8) Factorise $16a^3b + 24a^2b^2 - 8a^2b$

9) Factorise $45x^2y^2z - 30xy^3z^2$

10) Factorise $60p^4q^3 - 40p^3q^4 + 20p^2q^2$

Answers & Worked Solutions

- **I Do:**

HCF of 18 and 24 is 6.

HCF of x^2 and x is x .

HCF of y and y^2 is y .

Overall HCF is $6xy$.

$$18x^2y \div 6xy = 3x$$

$$-24xy^2 \div 6xy = -4y$$

Answer: $6xy(3x - 4y)$

- **We Do:**

HCF of 12 and 16 is 4. Variable HCF is ab .

Overall HCF is $4ab$.

Answer: $4ab(3a - 4b)$

- **You Do:**

HCF of 21 and 14 is 7. Variable HCF is mn .

Overall HCF is $7mn$.

Answer: $7mn(3m - 2n)$

- **Challenge:**

HCF of 24, 16, and 8 is 8.

Highest power of x common to all is x^2 . Highest power of y common to all is y^2 .

Overall HCF is $8x^2y^2$.

Answer: $8x^2y^2(3x - 2y + 1)$

- **Practice Perfect Answers:**

1) $5xy(2x - 3)$

2) $7ab^2(2a + 3)$

3) $4p^2q(2p - 3q)$

4) $5m^2n(5n - 3m)$

5) $9c^2d^2(2c + 3d)$

6) $12x^2y^2(3y - 2x)$

7) $11u^2v(2u^2 - 3v)$

8) $8a^2b(2a + 3b - 1)$

9) $15xy^2z(3x - 2yz)$

10) $20p^2q^2(3p^2q - 2pq^2 + 1)$