



# ACHIEVE ACADEMY

## GCSE Maths — Foundation Tier

Factors, Multiples, Primes & Indices · Practice Booklet

NAME: \_\_\_\_\_

CLASS: \_\_\_\_\_

DATE: \_\_\_\_\_

☐ Developing

☒ Secure

☐ Greater Depth

Answer every question in the working space provided. Method marks are available for correct working even if the final answer is wrong. Check the time allowed with your tutor before you start.

### Factors, Multiples, Primes & Indices

---

Total marks available: 61

## ● Factors, Multiples, Primes & Indices

✓72

Q1 · ● Developing · 2 marks

### METHOD

Multiples of 24: 24, 48, 72

Multiples of 18: 18, 36, 54, 72

Lowest common multiple = 72

✓4

Q2 · ● Developing · 2 marks

### METHOD

Factors of 8: 1, 2, 4, 8

Factors of 20: 1, 2, 4, 5, 10, 20

Highest common factor = 4

✓ $2^2 \times 3$

Q3 · ● Developing · 2 marks

### METHOD

$12 \div 2 = 6$

$6 \div 2 = 3$

$12 = 2 \times 2 \times 3$

✓ $2^4$

Q4 · ● Developing · 2 marks

### METHOD

$16 \div 2 = 8$

$8 \div 2 = 4$

$4 \div 2 = 2$

$16 = 2 \times 2 \times 2 \times 2$

✓6

Q5 · ● Developing · 2 marks

METHOD

Factors of 42: 1, 2, 3, 6, 7, 14, 21, 42

Factors of 12: 1, 2, 3, 4, 6, 12

Highest common factor = 6

✓5

Q6 · ● Developing · 2 marks

METHOD

Factors of 25: 1, 5, 25

Factors of 20: 1, 2, 4, 5, 10, 20

Highest common factor = 5

✓ $2 \times 3 \times 7$

Q7 · ● Developing · 2 marks

METHOD

$42 \div 2 = 21$

$21 \div 3 = 7$

$42 = 2 \times 3 \times 7$

✓ $2 \times 3^2$

Q8 · ● Developing · 2 marks

METHOD

$18 \div 2 = 9$

$9 \div 3 = 3$

$18 = 2 \times 3 \times 3$

✓90

Q9 · ● Developing · 2 marks

METHOD

Multiples of 15: 15, 30, 45, 60, 75, 90

Multiples of 18: 18, 36, 54, 72, 90

Lowest common multiple = 90

$\sqrt{5 \times 7}$

Q10 · ● Developing · 2 marks

METHOD

$$35 \div 5 = 7$$

$$35 = 5 \times 7$$

$\sqrt{9}$

Q11 · ● Secure · 1 mark

METHOD

$$3^2 = 3 \times 3 = 9$$

$\sqrt{10^2}$

Q12 · ● Secure · 2 marks

METHOD

When dividing powers of the same base, subtract the indices:  $7 - 5 = 2$

$\sqrt{10^3}$

Q13 · ● Secure · 2 marks

METHOD

When dividing powers of the same base, subtract the indices:  $5 - 2 = 3$

$\sqrt{14}$

Q14 · ● Secure · 1 mark

METHOD

$$14 \times 14 = 196, \text{ so } \sqrt{196} = 14$$

$\sqrt{2^6}$

Q15 · ● Secure · 2 marks

METHOD

When multiplying powers of the same base, add the indices:  $5 + 1 = 6$

✓27

Q16 · ● Secure · 1 mark

METHOD

$$3^3 = 3 \times 3 \times 3 = 27$$

✓5

Q17 · ● Secure · 1 mark

METHOD

$$5 \times 5 = 25, \text{ so } \sqrt{25} = 5$$

✓5<sup>7</sup>

Q18 · ● Secure · 2 marks

METHOD

When multiplying powers of the same base, add the indices:  $5 + 2 = 7$

✓512

Q19 · ● Secure · 1 mark

METHOD

$$8^3 = 8 \times 8 \times 8 = 512$$

✓3<sup>1</sup>

Q20 · ● Secure · 2 marks

METHOD

When dividing powers of the same base, subtract the indices:  $4 - 3 = 1$

✓1/100

Q21 · ● Greater Depth · 2 marks

METHOD

$$10^{-2} = 1/10^2 = 1/100$$

✓140

Q22 · ● Greater Depth · 3 marks

METHOD

Every prime factor (highest powers):  $2^2 \times 5 \times 7$   
LCM = 140

✓1/25

Q23 · ● Greater Depth · 2 marks

METHOD

$5^{-2} = 1/5^2 = 1/25$

✓72

Q24 · ● Greater Depth · 3 marks

METHOD

Every prime factor (highest powers):  $2^3 \times 3^2$   
LCM = 72

✓40

Q25 · ● Greater Depth · 3 marks

METHOD

Every prime factor (highest powers):  $2^3 \times 5$   
LCM = 40

✓24

Q26 · ● Greater Depth · 3 marks

METHOD

Common prime factors (lowest powers):  $2^3 \times 3$   
HCF = 24

✓126

Q27 · ● Greater Depth · 3 marks

METHOD

Every prime factor (highest powers):  $2 \times 3^2 \times 7$   
LCM = 126

✓1/64

Q28 · ● Greater Depth · 2 marks

METHOD

$4^{-3} = 1/4^3 = 1/64$

✓1/10

Q29 · ● Greater Depth · 2 marks

METHOD

$10^{-1} = 1/10^1 = 1/10$

✓112

Q30 · ● Greater Depth · 3 marks

METHOD

Every prime factor (highest powers):  $2^4 \times 7$   
LCM = 112