Exercise walk-through

1.1.3 Counting

AQA · GCSE · Mathematics

Foundation or Higher?

Skill	Foundation	Higher
integer indices, **standard form**	yes	yes
fractional indices, **surds**	—	yes
recurring decimals to fractions	—	yes
error intervals	yes	yes
bounds in calculations	—	yes

Terms with examples

Term	Example
prime factor	$60 = 2^2 \times 3 \times 5$
reciprocal	-4 and $-\frac{1}{4}$
surd	$\sqrt{12} = 2\sqrt{3}$
recurring decimal	$0.\dot{2}\dot{7} = \frac{3}{11}$
significant figure	$0.004786 \to 0.0048$

Check yourself

Question	Answer
HCF of 72 and 90?	18
$\frac{5}{6} - \frac{3}{4}$?	$\frac{1}{12}$
$27^{2/3}$?	9
3.6 kg to 1 d.p.: interval?	$3.55 \leq m < 3.65$
Original if 20% off gives 64?	80

Exercises 2.1–2.3

2.1 (Foundation) How many cafe choices are in the complete list?

2.2 (Foundation) How many remain when tea-melon is removed?

2.3 (Foundation) How many three-digit codes use 1,2,3 once each?

Exercises 2.1–2.3

2.1 (Foundation) How many cafe choices are in the complete list?

2.1 There are three listed foods under each of two drinks: six listed outcomes.

2.2 (Foundation) How many remain when tea-melon is removed?

2.2 Remove one of the six outcomes: five remain.

2.3 (Foundation) How many three-digit codes use 1,2,3 once each?

2.3 List 123,132,213,231,312,321: six codes.

Exercise 3.1

3.1 Decide whether this claim is true. Justify with a concrete calculation or counterexample: Three available first choices and four second choices always give twelve outcomes even if some combinations are forbidden.

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3.1 False. If one of the 3×4 pairs is forbidden, only 11 outcomes remain. The product rule needs all combinations to be allowed, or an adjusted count by cases.

Local review guidance: show the chosen method; give the checked result; explain the condition or failed shortcut. This is authored classroom guidance.