

10 quintillion

Roughly 10,000,000,000,000,000,000 insects are alive on Earth right now. This is a number too large to picture, or to compare with anything.

roughly 80%

The same fact as a percentage makes instant sense: about 80% of all known animal species are insects. Estimates vary slightly by source, but every version agrees that most animals are insects.

75%

India's 3,682 wild tigers is a count that says little on its own. You understand it much better once you know it is roughly 75% of every wild tiger left on the planet, living in one country.

Two of those numbers turn a raw count into a percentage you can grasp in a second. This kit teaches you how to turn a count into a percentage, and to read what it tells you.

EZANA LEARNING

Personalised kit, mapped to your curriculum

Saturdays at the Shelter

Turning raw shelter counts into the percentages real vets and conservation scientists use

Syllabus	Cambridge Lower Secondary Mathematics 0862	Chapter	Fractions, decimals, percentages, ratio and proportion – Percentages focus
Objectives	7Nf.01, 7Nf.05	Scenario	Saturdays at the Shelter
Made for	Anaya	Level	Stage 7 (Lower Secondary – no Core/Extended tier)

"I've just started volunteering at a local animal shelter on Saturdays and I'm obsessed with it." – Anaya

By the end, you should be able to:

- Say what a percentage means, and read one off a hundred-grid without hesitating.
- Recognise when a fraction, a decimal and a percentage are the same amount written three different ways.
- Work out a percentage of an amount, including quantities that come out under 1% or over 100%.
- Work out two percentages and state, in words, which one is larger and why.
- Prevent the two careless slips that lose marks on equivalence and comparison questions.

Every Quick check has its answer printed upside-down directly below it. Try it, then flip the page to check on the spot. Full working and the mark scheme start on page 16.

1

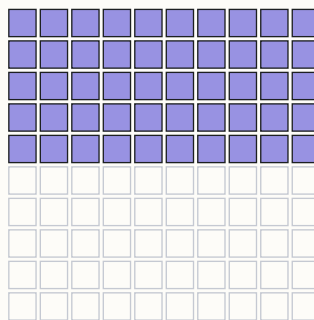
What a Percentage Is per cent = out of 100, and the benchmarks you can spot by eye



Pour yourself half a glass of water. You call that “half a glass” without thinking about it. Written as a percentage, you write 50%. “Per cent” means “out of 100.” Imagine the glass split into 100 equal marks: filling it to the halfway line fills exactly 50 of them. That is where 50% comes from.

KEY IDEA — Per cent = out of 100

“Per cent” always means “out of 100.” A percentage compares an amount to 100, no matter how large or small the real numbers are. 50% always means 50 out of every 100. This is true whether you measure 50 water-marks in a glass, 50 cats out of 100 at a shelter, or 50 tigers out of 100 wild tigers on Earth.



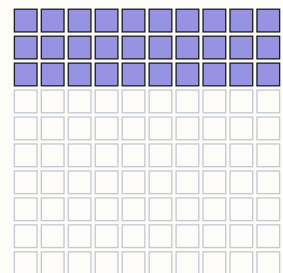
100 equal squares, 50 shaded. You see 50 out of 100 — 50%. The same amount as half a glass of water.

You should know four percentages by heart: 100% is everything, 50% is exactly half, 25% is a quarter, and 10% is a tenth. You already read one of them most days. A phone battery at 75% means you have a large amount of power left, but it is not full, and you know that without doing any sums. Once the benchmarks feel familiar, estimate before you calculate. If a grid looks a little more than half shaded, guess “a bit over 50%” first. Then check that your exact answer is close to your guess. If it isn’t, you must check your working. It is not a sign you cannot do the maths.

Watch for the “percentage of **what?**” trap. A bigger percentage does not always mean a bigger amount. It depends what the percentage measures. 50% of 1000 is much larger than 90% of 10. You must always check what the percentage measures before you compare two of them.

QUICK CHECK — READ THE GRID

- 1 The grid on the right has 100 equal squares. How many are shaded, and what percentage is that? Before you count, estimate: is it more or less than a quarter? [2 marks]



Flip to check — 30 squares shaded — 30% (a little more than a quarter).



You can write half a glass of water three ways: $\frac{1}{2}$, 0.5 or 50%. These are **equivalent** values. Equivalent means “worth the same amount, even though it looks different.” A fraction is a slice counted out of a whole number of slices. A decimal is that same slice measured out of 1. A percentage is that same slice measured out of 100. None of these change the actual amount. They just measure it against a different total.

To swap between them: a fraction like $\frac{3}{4}$ means 3 divided by 4, which gives the decimal 0.75. Multiply a decimal by 100 to get the percentage: $0.75 \times 100 = 75\%$. So $\frac{3}{4} = 0.75 = 75\%$. One amount wears three costumes, and you can always check one against another if you convert them. Some questions give you four values and ask you to **circle** the one that is **not** equivalent to the other three. This looks simple, but one exact rule trips people up even when they spot the right answer.

WORKED EXAMPLE – Why you circle exactly one

Problem: Circle the value that is NOT equivalent to the other three.

$\frac{1}{5}$

0.2

20%

$\frac{2}{5}$

Step 1: Check each value against $\frac{1}{5}$. $\frac{1}{5} = 1 \div 5 = 0.2$, and $0.2 \times 100 = 20\%$. So $\frac{1}{5}$, 0.2 and 20% are all the same amount.

Step 2: Check the last value. $\frac{2}{5} = 2 \div 5 = 0.4$, and $0.4 \times 100 = 40\%$. That is a different amount from the other three.

Step 3: Circle $\frac{2}{5}$ – and only $\frac{2}{5}$. Nothing else gets a mark on this circle.

Think: why does circling more than one answer lose the whole mark, even if the correct one is in there? Because the question asks you to identify **the** single value that doesn't belong. Circling extra values shows you haven't actually decided. The mark scheme awards the mark for a clear, single, correct choice. Circle one shape, one line, one answer – never more, even if you are not sure.

QUICK CHECK – CIRCLE EXACTLY ONE

2 Circle the value that is NOT equivalent to the other three. Circle exactly ONE. [1 mark]

$\frac{3}{4}$

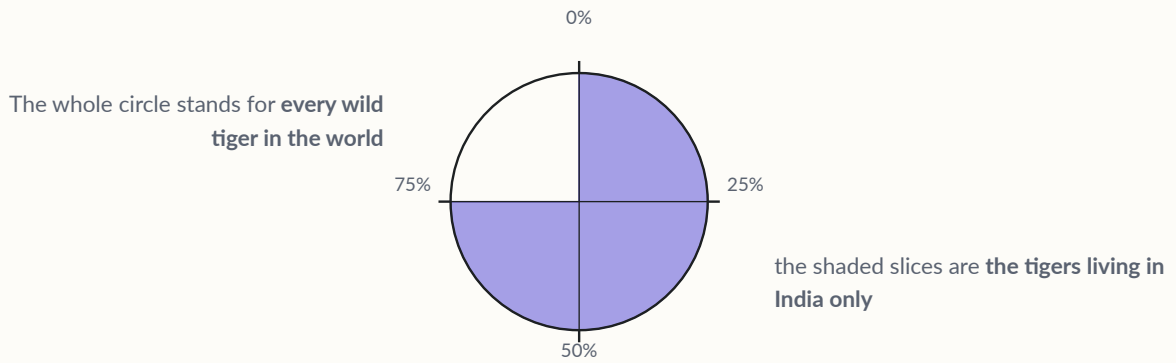
0.75

75%

$\frac{7}{10}$

Flip to check – $\frac{7}{10}$ (the other three are all 75%; $\frac{7}{10} = 70\%$).

A pie chart is a circle split into slices. The whole circle always equals 100%. To read a pie chart you compare one slice's size to the whole circle. This is exactly the same skill as reading a hundred-grid. You just draw it as a circle instead of a square.

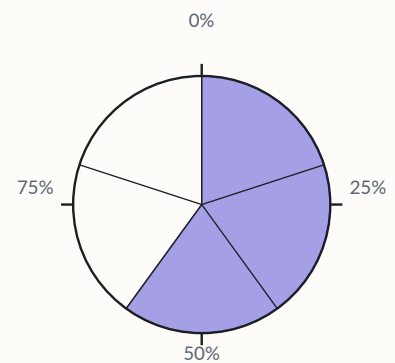


World wild tigers, 2022. India's share – 3 of the 4 equal slices, 75% – is shaded.

75% of the world's wild tigers live in one country. The raw count – about 3,682 tigers – means very little until you turn it into that percentage. This is precisely the job a wildlife scientist does with real data. They turn an awkward count into a comparable proportion.

QUICK CHECK – READ A DIFFERENT PIE

- 3** The pie chart on the right shows a shelter's monthly cat intake, cut into 5 equal slices. Count the shaded slices, then write the shaded share as a fraction, a decimal, and a percentage. [3 marks]

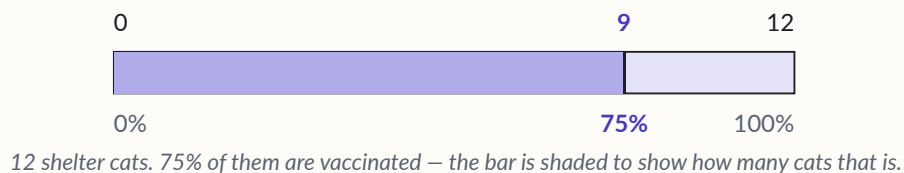


Flip to check – $3/5 = 0.6 = 60\%$.

3 Working Out a Percentage of an Amount turning a percentage into a real number



So far you read percentages off a picture. Now you will work one out from a count of real things. Real shelter staff use this skill to report how the animals in their care are doing.



WORKED EXAMPLE – 75% of 12 shelter cats

Problem: A shelter has 12 cats. 75% of them are vaccinated. How many cats is that?

Step 1: Change the percentage to a decimal. $75\% = 0.75$.

Step 2: Multiply by the total amount. $0.75 \times 12 = 9$.

Step 3: State the answer in words. 9 of the 12 cats are vaccinated.

Step 4: Check it against the bar picture. The shaded part reaches 9 cats along. It matches.

Think: why do you multiply by the decimal instead of the percentage number itself (0.75, not 75)? Because “75%” means “75 out of 100”. If you multiply by 75 instead of 0.75 you get an answer 100 times too large. The decimal step is what correctly rescales it back down to the real amount.

QUICK CHECK – SAME METHOD, DIFFERENT NUMBERS

- 4 The shelter now has 20 cats, and the same 75% of them are vaccinated. How many cats is that? [2 marks]

Q Flip to check – 15 cats ($0.75 \times 20 = 15$).

4

Your Turn, With the Steps Laid Out guided practice – fill in each step



Now try the same method yourself, with the steps written out for you to fill in. Use exactly the four steps from Section 3. Change the percentage to a decimal, multiply by the total, state the answer, and then check it feels right.

GUIDED – THE SHELTER GROWS

- 5 The shelter now looks after 40 cats. 75% are vaccinated. Follow the steps: [3 marks]

Step 1 – 75% as a decimal = _____.

Step 2 – _____ $\times$ 40 = _____.

Step 3 – so _____ of the 40 cats are vaccinated.

- 6 Of the 10 cats that still need their first vaccination, 8 are new arrivals this week. What percentage of the cats still needing vaccination are new arrivals? [3 marks]

Step 1 – how many cats is that, out of how many? _____ out of _____.

Step 2 – _____ $\div$ _____ $\times$ 100 = _____ %.

■ ■ Good place to stop before the Toolkit and Sections 5–7.

■ ■ ■ ■ ■ ■ ■ ■ your progress so far



 TOOLKIT — KEY TERMS AND THE TWO METHODS

- **Per cent (%)** — “out of 100.” Always a comparison to 100, however big or small the real amounts are.
- **Equivalent** — worth the same amount, even though it looks different (a fraction, a decimal and a percentage can all be equivalent).
- **Justify** — say **why**, using the actual numbers — not just “yes” or “no.”
- **Convert between fraction, decimal and percentage:**
 1. Fraction → decimal: divide the top number by the bottom number.
 2. Decimal → percentage: multiply by 100.
 3. Percentage → decimal: divide by 100.
- **Find a percentage of an amount:**
 1. Change the percentage to a decimal (divide by 100).
 2. Multiply by the total amount.
 3. State the answer in words, and check it’s roughly the size you’d expect.
- **The two exact ways this topic loses a mark, even when you know the method:**
 1. Circling more than one value on an “odd one out” question. Circling extra values loses the entire mark. Circle exactly one choice, even if you are not sure.
 2. Writing “yes” or “no” on a compare-two-percentages question without stating both percentages. You must state both percentages to explain your reasoning; stating only your final choice does not provide a valid argument.

5

Now You Try – Percentage of an Amount same method, fresh numbers



Every percentage question in this kit belongs to one of two kinds.

The first kind is **percentage of an amount**: you have a total and calculate a part, or work backward. The second kind is **equivalence**: you determine whether two ways of writing a value mean the exact same amount.

In this section, every question is the first kind. Use the same method from Sections 3–4: change the percentage to a decimal, then multiply. Use the help cue on each question if you need it.

PERCENTAGE PRACTICE

- 1 Work out 45% of ₹300. Help: change 45% to a decimal first, then multiply. Stuck? → see Worked Example, Section 3. [1 mark]

- 2 Work out 35% of 200 vaccine doses. Help: same two steps as above. [1 mark]

- 3 A cat food bag normally costs ₹1,500. It is on sale at 80% of that price. Work out the sale price. Help: find 80% of 1,500 first — that IS the sale price. [2 marks]

- 4 The shelter has 16 dogs this week, and 12 have been walked already today. What percentage of the dogs have been walked? Help: this is the amount $\div$ total $\times$ 100 version of the method — the same two-step method, applied to a percentage instead of an amount. [2 marks]

6

Now You Try – Same Amount, Three Ways spotting and building equivalent values



These are the second kind — equivalence. You spot and build values that represent the same amount, exactly as in Section 2. Remember the rule from the Toolkit: on an odd-one-out question, circle exactly one.

 ODD ONE OUT

- 5 Circle the value that is NOT equivalent to the other three. Circle exactly ONE. Help: convert each one to a percentage and compare. [1 mark]

$$\frac{1}{4}$$

0.25

25%

$$\frac{1}{5}$$

- 6 Circle the value that is NOT equivalent to the other three. Circle exactly ONE. Help: same method as above. [1 mark]

$$\frac{2}{5}$$

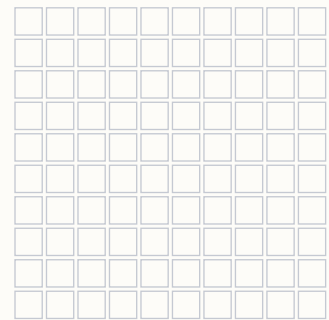
40%

0.4

$$\frac{4}{5}$$

 SHADE THE GRID

- 7 Shade squares on the hundred-grid on the right to show 35%. How many squares did you shade? [1 mark]



 MATCH THE PAIRS

- 8 Draw a line to match each calculation on the left to the one on the right that gives the same value. [4 marks]

Left

- 25% of 20 cats
- 50% of 18 dogs
- 10% of 30 kittens
- 30% of 20 doses

Right

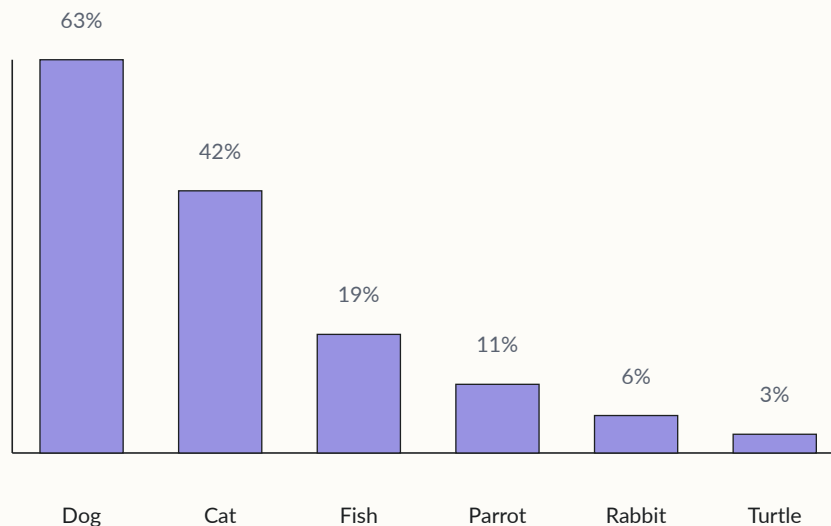
- 45% of 20 dogs
- 60% of 10 doses
- 5% of 100 doses
- 20% of 15 kittens

7

Which Is Bigger, and Why the exact sentence shape that earns the mark



Sometimes a question asks you to compare two percentages and say which is larger. There is exactly one sentence shape that gets full marks here, and one that never does. Watch the worked example first.



Pets kept by pet-owning households in India. A household can own more than one kind of pet, so these do not add up to 100%.

WORKED EXAMPLE – Dogs or cats – which is more common?

Problem: Among India's pet-owning households, 63% keep a dog and 42% keep a cat. Which is more common? Explain your answer.

Step 1: Read off both percentages. Dogs: 63%. Cats: 42%.

Step 2: Compare the two numbers. 63 is more than 42.

Step 3: Write the full comparison sentence: "Dogs are more common than cats, because 63% is more than 42%."

Think: why isn't "dogs" alone, or "yes," a full answer? Because the question asks you to **explain** – and the mark scheme only awards the mark when both percentages are actually stated as the reason. "Because 63% is more than 42%" is the exact sentence shape to reuse every time you are asked to justify a comparison. Swap in your own two numbers and it always works.

MARK THIS WORK – SPOT THE MISSING REASON

A student was asked: "At the shelter, 9 out of 12 cats are vaccinated and 14 out of 20 dogs are vaccinated. Which animals have the higher vaccination percentage? Explain your answer."

A STUDENT'S ANSWER

"9 out of 12 vaccinated = 75%

14 out of 20 vaccinated = 70%

Cats have the higher percentage because it's bigger."

- 9 Exactly one line of this working is wrong. Find it, explain why it loses the mark, and write a corrected version. [2 marks]

 YOUR TURN – WRITE THE COMPARISON SENTENCE

- 10** At a different shelter, 8 out of 10 rabbits have a health check, and 15 out of 25 rabbits are microchipped (these are different rabbits being compared for two different checks – not the same 10). Work out both percentages, then write a full comparison sentence using the shape from the worked example. [3 marks]

How confident are you that you made no errors in Sections 5–7? If you circled more than one answer anywhere in Section 6, go back and redo just that one question. If you wrote “yes,” “no,” or “bigger” without stating both percentages anywhere in Section 7, go back and rewrite just that sentence using the shape from Section 7’s worked example. The Challenge and the exam section apply the same rule.

|| This is a good place to stop. Come back for the Challenge and the exam-style section when you are ready.

☒ ☒ ☒ ☒ ☒ ☒ ☒ ☐ ☐ your progress so far

8

The Challenge — Real Numbers, Real Conservation Data optional — a chance to stretch



This section is optional. It uses the same method as earlier sections, applied to the real figures from the front page.

It also includes two cases named in the Cambridge syllabus but less common in past papers: a percentage under 1%, and a percentage over 100%.

Real figure	Value
Wild tigers in India (2022 estimate)	3,682
India's share of the world's wild tigers	75%
Estimated individual insects alive on Earth right now	10,000,000,000,000,000,000
Insects as a share of known animal species	roughly 80%

THE CHALLENGE

- 1** If India's 3,682 tigers make up 75% of the world's wild tigers, roughly how many wild tigers exist in the whole world? Round your answer to the nearest whole hundred. [3 marks]

- 2** A single tiger reserve protects 12 tigers out of India's 3,682. Work out this as a percentage. Round to 2 decimal places. This is an example of the "under 1%" case the syllabus mentions. [3 marks]

- 3** A conservation charity's tiger-tracking budget this year is 250% of last year's budget. If last year's budget was ₹400,000, what is this year's budget? This is an example of the "over 100%" case — a percentage larger than the whole does not mean an error, it means "more than the original amount." [2 marks]



These four questions use the same command words and mark values as Cambridge Stage 7 past papers, but with fresh numbers.

They are mixed on purpose, not grouped by method. Before each question, decide the type: **Type A** — **find the slice** (percentage of an amount), or **Type B** — **convert** (equivalence between forms).

This is the same decision habit from Sections 5 and 6, now applied to a mixed set.

 EXAM-STYLE

E1 Work out 45% of ₹200. Which type is this — A or B? [1 mark]

E2 Circle the value that is NOT equivalent to the other three. Which type is this — A or B? [1 mark]

$$\frac{3}{10}$$

$$0.3$$

$$30\%$$

$$\frac{1}{3}$$

E3 A shelter's two vets each check some animals in a week. Vet A checks 18 out of 24 animals booked in. Vet B checks 21 out of 30 animals booked in. Work out the percentage each vet checked, then say which vet checked the higher percentage of their bookings. You must state both percentages to gain full marks. Which type is this — A or B? [3 marks]

E4 Which is larger: $\frac{6}{5}$ or 110%? Write both as percentages, then say which is larger and why. Which type is this — A or B? [2 marks]

 EXTENSION – FIND A REAL PERCENTAGE OF YOUR OWN

Next time you are at the shelter or looking at any real animal report online, find one raw count (for example, “12 out of 15 kittens rehomed this month”) and work out the percentage yourself, using the method from Section 3. Then see if the report states a percentage too, and check your percentage against their percentage.

1 The raw count I found: _____

2 My working and my percentage: _____

3 Did the report also give a percentage? How does it compare to mine?

All done? Look back at the goals from page 1 and tick each one you can now do with confidence. If anything is not ticked yet, the Toolkit page and the worked examples in Sections 2, 3 and 7 are exactly where to go back to.

- ☐ I can state what a percentage means and read one from a hundred-grid.
- ☐ I can determine whether a fraction, a decimal and a percentage represent the same amount.
- ☐ I can calculate a percentage of an amount, even a difficult one.
- ☐ I can work out two percentages and explain which is larger, using both numbers.
- ☐ I can check my own equivalence and comparison answers before I hand them in.

Check your answers

Try first. Check after. Full working is in the mark scheme.

Section 1 — Quick check — read the grid: **30 squares — 30%**

Section 2 — Quick check — circle exactly one: **7/10** (see Worked Example, Section 2) · Quick check — read a different pie: **$3/5 = 0.6 = 60\%$**

Section 3 — Quick check — same method, different numbers: **15 cats** (see Worked Example, Section 3)

Section 4 — Guided Q1: **30 cats** · Guided Q2: **80%**

Section 5 — Q1: **₹135** · Q2: **70 doses** · Q3: **₹1,200** · Q4: **75%**

Section 6 — Odd one out 1: **$1/5$** · Odd one out 2: **$4/5$** · Shade the grid: **35 squares** · Match the pairs: **25% of 20 cats $\leftrightarrow$ 5% of 100 doses (both 5); 50% of 18 dogs $\leftrightarrow$ 45% of 20 dogs (both 9); 10% of 30 kittens $\leftrightarrow$ 20% of 15 kittens (both 3); 30% of 20 doses $\leftrightarrow$ 60% of 10 doses (both 6)**

Section 7 — Mark this work: **Missing reason — corrected: cats 75%, dogs 70%, “because 75% is more than 70%”** (see Worked Example, Section 7) · Your turn: **Health check 80%, microchipped 60% — “80% is more than 60%”** (see Worked Example, Section 7)

Section 8 — The Challenge — about **4,900 tigers** · **0.33%** · **₹1,000,000**

Section 9 — Exam style — E1: **₹90, Type A** · E2: **$1/3$, Type B** · E3: **Vet A 75%, Vet B 70%, Vet A is higher, Type A** · E4: **$6/5$ is bigger (120% vs 110%), Type B**

Mark scheme

Saturdays at the Shelter · Mathematics 0862 · Made for Anaya

Skill legend: **find the slice** = percentage of an amount, including under-1%/over-100% cases (7Nf.05) · **compare & justify** = comparing two percentages and stating both to justify which is bigger (7Nf.05) · **convert** = fraction/decimal/percentage equivalence, including odd-one-out and grid shading (7Nf.01). Section 9's Type A/B tag (self-check habit, not separately marked) = A: find the slice, B: convert.

§	Q	Answer / working	Skill	Marks	Marking note
1	Read the grid	30 squares — 30% — 30 of 100 shaded	convert	2	
2	Circle exactly one	$\frac{7}{10} - \frac{3}{4} = 0.75 = 75\%$; $\frac{7}{10} = 70\%$	convert	1	Zero marks if more than one value is circled.
2	Read a different pie	3/5 = 0.6 = 60% — shaded slice = 3 of 5 equal parts	convert	3	1 mark per correct form.
3	Quick check	15 cats — $0.75 \times 20 = 15$	find the slice	2	
4	Guided Q1	30 cats — $0.75 \times 40 = 30$	find the slice	3	1 mark per step shown.
4	Guided Q2	80% — $8 \div 10 \times 100 = 80$	find the slice	3	1 mark per step; the base is Q1's 10 unvaccinated cats.
5	Q1	₹135 — $0.45 \times 300 = 135$	find the slice	1	
5	Q2	70 doses — $0.35 \times 200 = 70$	find the slice	1	
5	Q3	₹1,200 — $0.8 \times 1500 = 1200$	find the slice	2	The reduced price, not the discount amount.
5	Q4	75% — $12 \div 16 \times 100 = 75$	find the slice	2	
6	Odd one out 1	$1/5 - \frac{1}{4} = 25\%$; $\frac{1}{5} = 20\%$	convert	1	Zero if more than one circled.
6	Odd one out 2	$4/5 - \frac{2}{5} = 40\%$; $\frac{4}{5} = 80\%$	convert	1	Same rule.
6	Shade the grid	35 squares	convert	1	Any 35 of the 100 squares — position doesn't matter.
6	Match the pairs	25% of 20 cats ↔ 5% of 100 doses (both 5); 50% of 18 dogs ↔ 45% of 20 dogs (both 9); 10% of 30 kittens ↔ 20% of 15 kittens (both 3); 30% of 20 doses ↔ 60% of 10 doses (both 6)	find the slice	4	1 mark per correct pair; the four values (5, 9, 3, 6) are distinct, so no pairing is ambiguous.
7	Mark this work	"Cats have the higher vaccination percentage, because 75% is more than 70%." Planted error was "because it's bigger" (no	compare & justify	2	1 mark for identifying the missing reason, 1 for a corrected sentence stating both percentages.

		percentages stated); working: $9 \div 12 \times 100 = 75\%$; $14 \div 20 \times 100 = 70\%$.			
7	Your turn	Health check 80%, microchipped 60% — “80% is more than 60%” — $8 \div 10 \times 100 = 80$; $15 \div 25 \times 100 = 60$	compare & justify	3	No credit for a bare “health check is higher” — both percentages must be stated.
8	Q1	about 4,900 tigers — $3682 \div 0.75 = 4909.3...$	find the slice	3	Accept 4,850–4,950 — the “roughly 75%” headline figure carries its own rounding.
8	Q2	0.33% — $12 \div 3682 \times 100 = 0.3259...$	find the slice	3	The syllabus’s “less than 1%” case; answer to 2 d.p.
8	Q3	₹1,000,000 — $2.5 \times 400000 = 1000000$	find the slice	2	The “greater than 100%” case.
9	E1	₹90, Type A — $0.45 \times 200 = 90$	find the slice	1	
9	E2	1/3, Type B — $\frac{1}{3} = 0.333... \approx 33.3\%$; the other three all = 30%	convert	1	Zero if more than one circled.
9	E3	Vet A 75%, Vet B 70%, Vet A higher, Type A — $18 \div 24 \times 100 = 75$; $21 \div 30 \times 100 = 70$	compare & justify	3	1 mark per percentage, 1 for the comparison naming both.
9	E4	6/5 is bigger, Type B — $6 \div 5 = 1.2 = 120\%$; $120\% > 110\%$	compare & justify	2	1 mark for 120%, 1 for the comparison naming both percentages. Deliberately lands over 100%, echoing the Challenge case.

QA note Objectives verified against *Cambridge Lower Secondary Mathematics 0862 Curriculum Framework*, Version 2 (January 2021), Stage 7, p.15: 7Nf.01 and 7Nf.05. Question formats and command words are grounded in the two genuine past-paper sets identified in 01-topic-list.md (Cambridge Secondary 1 Progression Test, Stage 7, 2014 and 2011 papers) — see that file for full provenance and the caveat that these predate the current 0862 framework. Every real-world figure used (India’s 2022 tiger estimate and its 75% world share; the Smithsonian’s insect-count and insect-species-share figures; the India pet-ownership dog/cat percentages) is independently re-verified against the sources cited in 04-personalisation-map.md and restated with the same honest hedge on the insect-species figure (estimates vary by source depending on what is being counted). The recurring shelter-cats vaccination anchor (75% of 12, 20, 40 cats) is an illustrative teaching device specified by the curator for continuity, not a claim about a specific real shelter’s reported data, and is never presented as a cited fact. Scaffolding is heavy (dial 5): every objective carries a full worked example before any independent item, guided/faded practice bridges worked examples to open practice, both mark-scheme traps are pre-empted by a worked model before the student can lose a mark on them, and the back-matter answers add a “see Worked Example” pointer per the dial-5 allowance in kit-design-guide.md §6. Voice is warm and reassuring throughout, with affirmation kept concrete and tied to the student’s own working rather than generic praise, and reading load is kept light throughout (short sentences, one new term defined per first use, one idea per section).