ROUND TO 2 OR MORE SIGNIFICANT FIGURES

BUILDING BLOCKS

NAME _____ CLASS _____ DATE _____

KEY IDEA

Count significant figures (s.f.) from the first digit that is not zero.

Zeros at the start do not count. A zero between two digits does count.

4	7	3	8
1st	2nd	3rd	4th

0	.	0	6	5
			1st	2nd

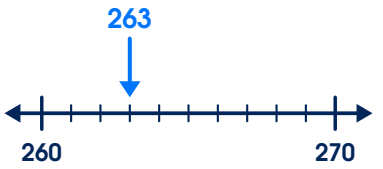
8	0	3
1st	2nd	3rd

1 Use the place value chart. Write the 1st and 2nd significant figures of each number.

	H hundreds	T tens	O ones	t tenths	h hundredths	th thousandths	tth ten thous.ths	1ST S.F.	2ND S.F.
a)	5	2	9						
b)			0	0	6	4			
c)	9	0	8						
d)			0	0	0	7	1		

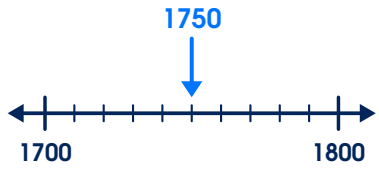
2 Use the number line. Round a) to the nearest 10 and b) to the nearest 100.

a)



→ _____

b)



→ _____

3 The dashed digit decides. Circle ROUND UP or STAY THE SAME, then write the answer.

a) 7 4 **2** to the nearest 10 — ROUND UP / STAY THE SAME — _____

b) 3 . 8 **6** to the nearest tenth — ROUND UP / STAY THE SAME — _____

c) 5 9 **5** 0 to the nearest 100 — ROUND UP / STAY THE SAME — _____

4 Round each number.

a) 3418 to the nearest 100 _____

b) 6.27 to the nearest tenth _____

ROUND TO 2 OR MORE SIGNIFICANT FIGURES

SUPPORT

NAME _____ CLASS _____ DATE _____

KEY IDEA

To round to 2 s.f., keep the first two significant figures.

The next digit (dashed) decides. In whole numbers, fill the gaps with zeros.

Th thousands	H hundreds	T tens	O ones	t tenths	h hundredths	th thousandths	tth ten thous.ths
4	7	3	8				
			0	0	3	8	6

3 is less than 5: stay the same → ≈ 4700

6 is 5 or more: round up → ≈ 0.039

1 Use the place value chart to complete the table. Part a) is done for you.

	Th thousands	H hundreds	T tens	O ones	t tenths	h hundredths	th thousandths	tth ten thous.ths	2ND S.F. COLUMN	ROUNDED TO 2 S.F.
a)	5	3	6	2					hundreds	5400
b)		8	1	7						
c)				0	3	9	4	6		
d)			4	8	7	3				
e)				0	0	7	1	8		

2 Use the number line to round each number to 2 significant figures.

a) 3460 on the number line between 3400 and 3500 → ____

b) 0.276 on the number line between 0.27 and 0.28 → ____

3 Round each number to 2 significant figures.

a) 6829 ____

b) 0.0573 ____

c) 14.62 ____

d) 7051 ____

4 Sam rounds 572 to 2 significant figures. He writes 600

a) What should Sam's answer be? ____

b) What mistake did Sam make?

_____

ROUND TO 2 OR MORE SIGNIFICANT FIGURES

CORE

NAME _____ CLASS _____ DATE _____

KEY IDEA

Count from the first non-zero digit. Zeros between non-zero digits are significant (in 5031 the 0 is the 2nd s.f.). Look at the digit after the last one you keep to decide whether to round up, e.g. 0.06417 ≈ 0.064 (2 s.f.).

FLUENCY

1 Round each number to the number of significant figures shown.

a) **7284** (2 s.f.) ☐

b) **0.06417** (2 s.f.) ☐

c) **52.86** (3 s.f.) ☐

d) **309 524** (3 s.f.) ☐

e) **0.9963** (2 s.f.) ☐

f) **4096** (3 s.f.) ☐

2 Lena's calculator shows 2863.75. Round this number to:

1 S.F.	2 S.F.	3 S.F.	4 S.F.

REASONING

3 Circle every number that rounds to 350 when it is rounded to 2 significant figures.

345 354 355 349 351 3500 344.9 35.1

4 Jo says, "Rounding to 2 significant figures is always the same as rounding to the nearest 10." Show that Jo is wrong.

ROUND TO 2 OR MORE SIGNIFICANT FIGURES

GREATER DEPTH

NAME _____ CLASS _____ DATE _____

REASONING

1 Is each statement always, sometimes or never true? Circle your answer.

If it is sometimes true, give an example of when it is true and when it is not.

a) Rounding to 2 s.f. and to 1 s.f. gives the same answer. ALWAYS SOMETIMES NEVER

b) A 4-digit whole number rounded to 2 s.f. ends in 00 ALWAYS SOMETIMES NEVER

c) A zero in a number is a significant figure. ALWAYS SOMETIMES NEVER

PROBLEM SOLVING

2 x has three decimal places. x rounds to 4.7 to 2 s.f. and to 4.73 to 3 s.f.

a) What is the smallest value x could be? ☐

b) What is the largest value x could be? ☐

3 Ravi weighs a parcel. He says it is 2.35 kg to 3 significant figures.

a) Write a possible mass that rounds to 2.3 kg to 2 s.f. ☐

b) Write a possible mass that rounds to 2.4 kg to 2 s.f. ☐

c) Can Ravi say what the mass is to 2 s.f.? Explain.

★ CHALLENGE FOR ALL

4 Think about the whole numbers that round to 5000

a) How many round to 5000 to 1 significant figure? ☐

b) How many round to 5000 to 2 significant figures? ☐

c) How many round to 5000 to 3 significant figures? ☐

d) Predict the answer for 4 significant figures. ☐

ROUND TO 2 OR MORE SIGNIFICANT FIGURES – ANSWERS

ANSWERS

BUILDING BLOCKS

Q1 a) 5, 2 · b) 6, 4 · c) 9, 0 · d) 7, 1

Q2 a) 260 · b) 1800

Q3 a) stay the same, 740 · b) round up, 3.9 · c) round up, 6000

Q4 a) 3400 · b) 6.3

SUPPORT

Q1 a) worked example (hundreds, 5400) · b) tens, 820 · c) hundredths, 0.39 · d) ones, 49 · e) thousandths, 0.072

Q2 a) 3500 · b) 0.28

Q3 a) 6800 · b) 0.057 · c) 15 · d) 7100

Q4 a) 570 · b) He rounded to 1 significant figure (the nearest hundred) instead of 2

CORE

Q1 a) 7300 · b) 0.064 · c) 52.9 · d) 310 000 · e) 1.0 · f) 4100

Q2 3000 · 2900 · 2860 · 2864

Q3 345, 349, 351, 354

Q4 e.g. 4738 to 2 s.f. is 4700 but to the nearest 10 is 4740; 0.276 to 2 s.f. is 0.28. It only matches for 3-digit whole numbers.

GREATER DEPTH

Q1 a) Sometimes: 300 → 300 both ways; 420 → 420 (2 s.f.) but 400 (1 s.f.) · b) Always: the digits after the 2nd s.f. become zeros · c) Sometimes: the 0 in 403 is significant (it is between two digits), but the zeros in 0.04 are not

Q2 a) 4.725 · b) 4.734

Q3 a) any mass from 2.345 kg up to (not including) 2.35 kg, e.g. 2.347 · b) any mass from 2.35 kg up to (not including) 2.355 kg, e.g. 2.352 · c) No: masses that round to 2.35 kg can round to 2.3 kg or 2.4 kg

Q4 a) 1000 (4500 to 5499) · b) 100 (4950 to 5049) · c) 10 (4995 to 5004) · d) 1 (just 5000)