

ROUNDING OFF
to the nearest whole number,
ten, hundred and thousand

After completing this unit, you will be able to:

- *round off to the nearest whole number*
 - *round off to the nearest ten*
 - *round off to the nearest hundred and thousand*
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ROUNDING OFF TO THE NEAREST WHOLE NUMBER

Let's look at two whole numbers, say 6 and 7.

There are lots of numbers between 6 and 7.

For example,

6.1, 6.2, 6.25, 6.49, 6.5, 6.62, 6.78, 6.999.

These are all between 6 and 7 because they all start with '6 point something'.

Rounding off say 6.8 to the nearest whole number can be easier if you think of it as an amount in money.

Is £6.80 closer to £6 or £7 ? Obviously it is closer to £7, so 6.8 rounded to the nearest whole number is 7.

What about £6.50 ? This is exactly halfway between £6 and £7. In this case, you must round up to £7.

So 6.5 rounded to the nearest whole number is 7,

11.5 rounded to the nearest whole number is 12, and so on.

*The rule is:
if the number after the decimal point is
5 or more, round up to the next whole number.*

More examples

Round the following to the nearest whole number:

	<i>method</i>	<i>answer</i>
4.35	the number after the decimal point is 3 which is less than 5, so ignore the .35	4
16.822	8 is more than 5, so round 16 up to 17	17
101.9	9 is more than 5, so round 101 up to 102	102
25.5	the number after the decimal point is 5 so round up 25 to 26	26
12.29	the number after the decimal point is 2 so ignore the .29	12
1.555	the number after the decimal point is 5 so round up 1 to 2	2

Self assessment one

Rounding to the nearest whole number

1. Round these amounts of money off to the nearest pound.

£ 1.35	£111.49
£ 2.89	£205.51
£19.99	£ 3.50
£ 6.25	£ 0.70
£ 5.02	£ 0.39

2. Round these numbers off to the nearest whole number.

2.8	12.499
3.45	11.5
1.2	8.555
1.99	0.85
4.529	0.1

Now check your answers

ROUNDING OFF TO THE NEAREST TEN

What is 37 to the nearest ten ?

37 is between 30 and 40.

Because 7 is more than 5, 37 rounds up to 40.

Remember, the rule is

*less than five, leave it alone,
five or more, round up.*

Examples

1. Round the following to the nearest ten:

	<i>method</i>	<i>answer</i>
43	3 is less than 5, so this rounds down to 40	40
198	198 is between 190 and 200; because 9 is more than 5, round up to 200	200
155	5 means 155 rounds up to 160	160
999	999 is between 990 and 1000; because 9 is more than 5, round up to 1000	1000
2	2 is less than 5	0

2. A business makes £2346 profit in one month. Select which answer is this profit to the nearest ten pound ?

A £2300 B £2340 C £2350 D £2400

answer 46 is between 40 and 50.

6 is more than 5, so £2346 is rounded up to C £2350.

Self assessment two
Rounding to the nearest ten

1. Round these numbers to the nearest ten.

77	295
43	8
55	1033
49	1003
129	3

Questions 2 to 4 are all multiple choice questions.
Select which answer, A, B, C or D, is correct in each case.

2. The distance from Crumpsall to Coventry is 136 miles. What is this distance to the nearest ten miles ?
- A 100 miles B 130 miles C 140 miles D 200 miles
3. The total weight loss for a slimming club over one month was 1655 kilograms. What is this weight to the nearest ten kilograms ?
- A 1650 kg B 1600 kg C 1660 kg D 1700 kg
4. Emma worked for one week and earned £185 to the nearest pound or £180 to the nearest ten pound.
Which of these amounts could be the actual amount she earned ?
- A £185.49 B £184.50 C £184.49 D £185.50

Now check your answers

ROUNDING OFF TO THE NEAREST HUNDRED AND THOUSAND

What is 257 to the nearest hundred ?

257 is between 200 and 300.

Because 57 is more than 50, 257 rounds up to 300.

What is 13 559 to the nearest thousand ?

It is between 13 000 and 14 000. Because 559 is above 500,

13 559 is rounded up to 14 000.

examples

1. Round the following to the nearest hundred:

	<i>method</i>	<i>answer</i>
189	89 is more than 50	200
595	550 is halfway between 500 and 600 so round up to 600	600
51	more than 50	100
49	less than 50	0
2990	90 is more than 50 so round up to 3000	3000

2. Round the following to the nearest thousand:

	<i>method</i>	<i>answer</i>
2 189	2 189 is between 2000 and 3000, 189 is less than 500	2 000
10 555	550 is more than 500, so round up to 11 000	11 000
5 449	449 is less than 500 so round down to 5 000	5 000
6 500	500 rounds up to the next thousand	7 000
350	350 is between 0 and 1000, but less than 500 so round down	0

3. Barry won £32 455 on the lottery. What is this amount to the nearest £100 ?

- A £32 400 B £32 450 C £32 460 D £32 500

Answer 455 is between 400 and 500.
55 is more than 50, so £32 455 is rounded up to
D £32 500.

4. The crowd capacity at Manchester United is 56 387. What is this number to the nearest thousand ?

- A 56 390 B 56 000 C 56 400 D 57 000

Answer 56 387 is between 56 000 and 57 000
387 is less than 500, so round down to B 56000.

Self assessment three

Rounding to the nearest hundred and thousand

1. Round these numbers off as indicated.

	<i>To the nearest hundred</i>	<i>To the nearest thousand</i>
167		1 823
255		4 778
549		6 449
51		20 500
1 298		998
1 850		400
28		2 001
999		9 999

Questions 2 to 6 are all multiple choice questions.

Select which answer, A, B, C or D, is correct in each case.

2. At a football match 44 649 fans attended. What is this figure to the nearest one hundred ?

A 44 640 B 44 700 C 44 650 D 44 600

3. A business makes £3800 profit to the nearest £100 and £3810 profit to the nearest £10 in the month of June. Which of these amounts could be the actual profit in June ?

A £3800 B £3803 C £3805 D £3815

4. The answer to a calculation is 1 508. Jack writes this as 1 500. He is rounding this answer to the nearest

A ten B whole number C hundred D thousand

5. The answer to another calculation is 1 899. Jack writes this answer as 2000. He is rounding this answer to the nearest

A ten B whole number C hundred D thousand

6. 442 rounded to the nearest thousand is

A 440 B 0 C 1000 D 400

Now check your answers

HARDER PROBLEMS INVOLVING ROUNDING OFF

EXAMPLES

1. One sweet weighs 5 grams. A bag of these sweets weighs 100 grams to the nearest 10 grams. How many sweets are in the bag ?

A 22 B 21 C 18 D 19

Answer

It might be easier to start with an answer so multiply by 5.

So, $22 \times 5 \text{ g} = 110 \text{ g}$ this cannot be 100 g to the nearest 10 g
 $21 \times 5 \text{ g} = 105 \text{ g}$ this is 110 g to the nearest 10 g
 $18 \times 5 \text{ g} = 90 \text{ g}$
 $19 \times 5 \text{ g} = 95 \text{ g}$ this is 100 g to the nearest 10 g
so D 19 is the correct answer.

2. Wendy won £1500 in a competition, rounded to the nearest £100. She decided to divide this amount between the members of her family, giving £80 to each person. How many members of her family are there ?

A 21 B 19 C 20 D 18

Answer

B 19 because $19 \times £80 = £1520$ which is £1500 to the nearest £100.

Self assessment four

Harder problems involving rounding

1. A fund has £900 rounded off to the nearest £100. It is to be divided equally between a group of people so that they each receive five pounds. How many people are in this group ?

A 160 B 170 C 190 D 200

2. A nail weighs 7 grams. A bag of nails weighs 310 grams to the nearest ten grams.

How many nails are in the bag ?

A 45

B 43

C 44

D 42

Now check your answers

ANSWERS

Self assessment 1

1.

£ 1.35	£2	£111.49	£111
£ 2.89	£3	£205.51	£206
£19.99	£20	£ 3.50	£4
£ 6.25	£6	£ 0.70	£1
£ 5.02	£5	£ 0.39	£0

2.

2.8	3	12.499	12
3.45	3	11.5	12
1.2	1	8.555	9
1.99	2	0.85	9
4.529	5	0.1	0

Self assessment 2

1.

77	80	295	300
43	40	8	10
55	60	1033	1030
49	50	1003	1000
129	130	3	0

2. C 140

3. C 1660 kg

4. B £184.50

Self assessment 3

1.

	<i>To the nearest hundred</i>		<i>To the nearest thousand</i>	
167	200	1 823	2 000	
255	300	4 778	5 000	
549	500	6 449	6 000	
51	100	20 500	21 000	
1 298	1 300	998	1 000	
1 850	1 900	400	0	
28	0	2 001	2 000	
999	1 000	9 999	10 000	

2. D 44600

3. C £3805

4. C hundred

5. D thousand

6. B 0

Self assessment 4

1. B £170

2. C 44

Work Schedule A

Unit 11: ROUNDING OFF TO THE NEAREST WHOLE NUMBER,
TEN AND HUNDRED
ASSIGNMENT

For the following questions, circle either answer A, B, C or D

1. Simon's weight has ballooned to 275 pounds to the nearest pound and 270 pounds to the nearest ten pounds.
Which of the following could be Simon's weight ?

A 275.4 lb B 274.4 lb C 274.5 lb D 275.5 lb
2. Simon decided to join a gym. A total of 23 445 people in Manchester joined a gym this year after their Christmas binge.
What is this number to the nearest one hundred ?

A 23 500 B 23 450 C 23 400 D 23 000
3. A new gym called 'Six Packs' made £15 500 to the nearest hundred and £15 000 to the nearest thousand in the month of January.
Which of these amounts could the actual profit be for the month of January ?

A 15 450 B 15 449 C 15 550 D 15 549
4. Simon cracks under the strain of his diet and buys a big bag of lemon bon bons. Each delicious bon bon weighs 9 grams and the whole bag weighs 240 grams to the nearest ten grams.
How many sweets are in Simon's bag ?

A 27 B 26 C 28 D 29
5. Nineteen members of a slimmer's club lost 600 pounds in total. The average weight loss per person is worked out on a calculator and comes to 31.578947 pounds.
What is this answer to the nearest whole pound ?

A 32 B 30 C 31 D 31.6