Grade 4 Unit 1 worksheet: Rounding to any place, including decimals (answer key)

ANSWERS AT A GLANCE

1. (a) 5,400 (b) 28,000 (c) 90,450 (d) 410,000 (e) 7,000 (f) 800,000 (g) 85,000 (h) 200,000
2. About 6,100 feet to the nearest hundred; about 6,000 feet to the nearest thousand.
3. (a) 36 (b) 80 (c) 110
4. 400,000 to the nearest thousand; 400,000 to the nearest ten thousand.
5. Mia: the nearest ten thousand. Liam: the nearest hundred thousand. Grace: the nearest thousand.
6. (a) 48,500, then 49,000. (b) 48,000. (c) No. 48,000 is right; rounding twice moved the number onto a halfway mark, and the second rounding went up again.

WORKED SOLUTIONS

1. Round each number to the place named.

(a) 5,382 to the nearest hundred

(b) 27,614 to the nearest thousand

(c) 90,451 to the nearest ten

(d) 413,760 to the nearest ten thousand

(e) 6,950 to the nearest hundred

(f) 758,209 to the nearest hundred thousand

(g) 84,500 to the nearest thousand

(h) 199,704 to the nearest thousand

ANSWER

(a) 5,400 (b) 28,000 (c) 90,450 (d) 410,000 (e) 7,000 (f) 800,000 (g) 85,000 (h) 200,000

SOLUTION

In each one, look only at the digit just right of the rounding place.

(a) The tens digit is 8, so round up: 5,382 ≈ 5,400.

(b) The hundreds digit is 6, so round up: 27,614 ≈ 28,000.

(c) The ones digit is 1, so keep the lower neighbor: 90,451 ≈ 90,450.

(d) The thousands digit is 3, so keep the lower neighbor: 413,760 ≈ 410,000.

(e) The tens digit is 5 and the ones digit is 0, so 6,950 is exactly halfway between 6,900 and 7,000. By the convention it rounds up. The hundreds digit 9 becomes ten, so trade it for one more thousand: 6,950 ≈ 7,000.

(f) The ten thousands digit is 5, so round up: 758,209 ≈ 800,000.

(g) 84,500 is exactly halfway between 84,000 and 85,000, so it rounds up: 84,500 ≈ 85,000.

(h) The hundreds digit is 7, so round up. The thousands digit 9 becomes ten, and so does the ten thousands digit after the trade, so the carry runs on to the hundred thousands: 199,704 ≈ 200,000.

2. Diego reads in a hiking guide that a mountain is 6,067 feet tall. Round the height to the nearest hundred feet and to the nearest thousand feet.

ANSWER

About 6,100 feet to the nearest hundred; about 6,000 feet to the nearest thousand.

SOLUTION

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To the nearest hundred, the neighbors are 6,000 and 6,100. The deciding digit is the tens digit, 6, so 6,067 ≈ 6,100 feet.

To the nearest thousand, the neighbors are 6,000 and 7,000. The deciding digit is the hundreds digit, 0, so 6,067 ≈ 6,000 feet.

3. Each number has a tenths digit. Round each one to the nearest whole number.

(a) 36.4 (b) 79.8 (c) 109.5

ANSWER

(a) 36 (b) 80 (c) 110

SOLUTION

The deciding digit is the tenths digit, just right of the ones place.

(a) 36.4 is between 36 and 37. The tenths digit 4 is less than 5, so 36.4 ≈ 36.

(b) 79.8 is between 79 and 80. The tenths digit 8 is 5 or more, so the ones digit 9 goes up. That makes ten, so trade it for one more ten: 79.8 ≈ 80.

(c) 109.5 is exactly halfway between 109 and 110, so by the convention it rounds up: 109.5 ≈ 110.

4. An airport counts 399,867 passengers in one month. Round this number to the nearest thousand and to the nearest ten thousand.

ANSWER

400,000 to the nearest thousand; 400,000 to the nearest ten thousand.

SOLUTION

To the nearest thousand, the neighbors are 399,000 and 400,000, and the deciding digit is the hundreds digit, 8. So 399,867 ≈ 400,000.

To the nearest ten thousand, the deciding digit is the thousands digit, 9. It is 5 or more, so the number rounds up. The ten thousands digit is 9, and one more makes ten. Ten ten thousands are one hundred thousand, so the ten thousands digit becomes 0 and the hundred thousands digit goes from 3 to 4:

$$399{,}867 \approx 400{,}000$$

On a number line the neighbors are 390,000 and 400,000, and the number is past the halfway mark between them.

5. A zoo had 487,920 visitors last year. Mia, Liam and Grace each rounded this number correctly, but each one rounded to a different place. Mia wrote "about 490,000", Liam wrote "about 500,000" and Grace wrote "about 488,000". Which place did each of them round to?

ANSWER

Mia: the nearest ten thousand. Liam: the nearest hundred thousand. Grace: the nearest thousand.

SOLUTION

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Round 487,920 to each place and match.

- Nearest ten: the ones digit is 0, so it stays 487,920.
- Nearest hundred: the tens digit is 2, so 487,900.
- Nearest thousand: the hundreds digit is 9, so 488,000. That is Grace's number.
- Nearest ten thousand: the thousands digit is 7, so 490,000. That is Mia's number.
- Nearest hundred thousand: the ten thousands digit is 8, so 500,000. That is Liam's number.

Each rounded number comes from only one place, so the matching is certain.

6. A bakery baked 48,451 loaves of bread last year. Priya rounds this number to the nearest hundred. Then she rounds her answer to the nearest thousand.

(a) What number does Priya get each time?

(b) Round 48,451 straight to the nearest thousand.

(c) Do the two ways give the same answer to the nearest thousand? If not, which one is right, and what went wrong?

ANSWER

(a) 48,500, then 49,000. (b) 48,000. (c) No. 48,000 is right; rounding twice moved the number onto a halfway mark, and the second rounding went up again.

SOLUTION

(a) To the nearest hundred, the tens digit is 5, so 48,451 ≈ 48,500. Then 48,500 is exactly halfway between 48,000 and 49,000, so by the convention it rounds up to 49,000.

(b) To the nearest thousand, the deciding digit is the hundreds digit, 4, so 48,451 ≈ 48,000.

(c) No. The right answer is 48,000: the number 48,451 is below the halfway mark 48,500, so it is closer to 48,000 than to 49,000. The first rounding moved it up to 48,500, which is not the real number of loaves, and the second rounding moved it up again. Round once, from the number itself, using only the digit just right of the rounding place.

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