Grade 5 Unit 1 worksheet: Thousandths: reading, writing and expanded form (answer key)

ANSWERS AT A GLANCE

1. (a) 0.07 (b) 0.003 (c) 0.9 (d) 8 (e) 0.02 (f) 0.006
2. (a) 7.054 (b) 9.038 (c) 46.009 (d) 8.041 (e) 95.006 (f) 0.308
3. (a) 30 + 5 + 0.06 + 0.002; thirty-five and sixty-two thousandths (b) 0.01 + 0.009; nineteen thousandths (c) 10 + 2 + 0.3 + 0.005; twelve and three hundred five thousandths
4. (a) 0.001, one thousandth (b) A is 3.253 and B is 3.258. (c) 5 thousandths
5. A, C, D and E name 5.06. B is 5.006 and F is 5.6.
6. (a) Each place holds one digit, 0 to 9; ten of a piece make one of the next bigger piece. (b) 2.123

WORKED SOLUTIONS

1. Write the value of the underlined digit as a decimal.

(a) $6.2\underline{7}5$ (b) $0.48\underline{3}$ (c) $14.\underline{9}06$

(d) $2\underline{8}.341$ (e) $70.1\underline{2}9$ (f) $5.00\underline{6}$

ANSWER

(a) 0.07 (b) 0.003 (c) 0.9 (d) 8 (e) 0.02 (f) 0.006

SOLUTION

(a) The 7 is the second digit after the point, the hundredths place: 7 × 0.01 = 0.07.

(b) The 3 is the third digit after the point, the thousandths place: 3 × 0.001 = 0.003.

(c) The 9 is the first digit after the point, the tenths place: 9 × 0.1 = 0.9.

(d) The 8 is just left of the point, the ones place: it is worth 8.

(e) The 2 is the second digit after the point, the hundredths place: 2 × 0.01 = 0.02.

(f) The 6 is the third digit after the point, the thousandths place: 6 × 0.001 = 0.006. The two zeros hold the tenths and hundredths places.

2. Write each number in standard form.

(a) 0.004 + 7 + 0.05

(b) $9 \times 1 + 3 \times \frac{1}{100} + 8 \times \frac{1}{1000}$

(c) $40 + 6 + \frac{9}{1000}$

(d) eight and forty-one thousandths

(e) ninety-five and six thousandths

(f) three hundred eight thousandths

ANSWER

(a) 7.054 (b) 9.038 (c) 46.009 (d) 8.041 (e) 95.006 (f) 0.308

SOLUTION

(a) Sort by place: 7 ones, no tenths, 5 hundredths, 4 thousandths. A 0 holds the tenths place: 7.054.

(b) 9 ones, no tenths, 3 hundredths, 8 thousandths: 9.038.

(c) 4 tens, 6 ones, no tenths, no hundredths, 9 thousandths: 46.009.

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In (d) to (f), the last word, thousandths, says three places follow the point. Write the number of thousandths so its last digit lands in the third place.

(d) The whole part is 8. Forty-one thousandths fills the last two places, so a 0 holds the tenths: 8.041.

(e) The whole part is 95. Six thousandths fills only the third place, so zeros hold the tenths and hundredths: 95.006.

(f) There is no "and", so there is no whole part. Three hundred eight thousandths fills all three places: 0.308.

3. Write each number in expanded form with decimals. Then write it in word form.

(a) 35.062

(b) 0.019

(c) 12.305

ANSWER

(a) 30 + 5 + 0.06 + 0.002; thirty-five and sixty-two thousandths (b) 0.01 + 0.009; nineteen thousandths (c) 10 + 2 + 0.3 + 0.005; twelve and three hundred five thousandths

SOLUTION

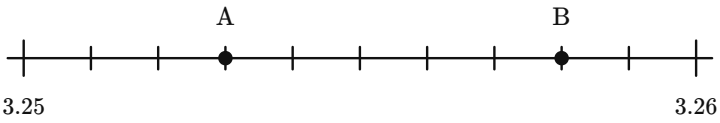
For expanded form, write one term for each digit that is not zero: the digit times the value of its place. For word form, say the whole part, say "and" for the point, then read the digits after the point as one number and name the last place.

(a) 3 tens, 5 ones, 0 tenths, 6 hundredths, 2 thousandths: 30 + 5 + 0.06 + 0.002. The digits 062 are the number 62, ending in the thousandths place: thirty-five and sixty-two thousandths.

(b) 0 tenths, 1 hundredth, 9 thousandths: 0.01 + 0.009. There is no whole part, so there is no "and". The digits 019 are the number 19: nineteen thousandths.

(c) 1 ten, 2 ones, 3 tenths, 0 hundredths, 5 thousandths: 10 + 2 + 0.3 + 0.005. The digits 305 end in the thousandths place: twelve and three hundred five thousandths.

4. The number line shows the part from 3.25 to 3.26, cut into ten equal parts.



(a) How much is each small part worth?

(b) Write the numbers at points A and B.

(c) How many thousandths apart are A and B?

ANSWER

(a) 0.001, one thousandth (b) A is 3.253 and B is 3.258. (c) 5 thousandths

SOLUTION

(a) From 3.25 to 3.26 is one hundredth. Ten equal parts of a hundredth are ten thousandths, so each part is 0.001.

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(b) A is 3 parts past 3.25: 3.25 + 0.003 = 3.253. B is 8 parts past 3.25: 3.25 + 0.008 = 3.258.

(c) From A to B is 8 − 3 = 5 parts, so they are 5 thousandths apart. Check: 3.253 + 0.005 = 3.258.

5. Which of these name the same number as 5.06? For each one that does not, write the number it names in standard form.

(A) 5.060 (B) 5.006 (C) five and six hundredths

(D) $5 + \frac{6}{100}$ (E) five and sixty thousandths (F) 5 + 0.6

ANSWER

A, C, D and E name 5.06. B is 5.006 and F is 5.6.

SOLUTION

5.06 is 5 ones, 0 tenths and 6 hundredths.

(A) 5.060 has the same digits plus a zero at the far right, which adds no value. Same number.

(B) 5.006 has the 6 in the thousandths place, worth 0.006, not 0.06. Different: 5.006.

(C) Five and six hundredths is 5 + 0.06 = 5.06. Same.

(D) $\frac{6}{100}$ is 6 hundredths, so $5 + \frac{6}{100} = 5.06$. Same.

(E) Sixty thousandths is 0.060, which is 6 hundredths. So five and sixty thousandths is 5.060 = 5.06. Same.

(F) 0.6 is 6 tenths, so 5 + 0.6 = 5.6. Different.

6. Mateo builds a number with base-ten pieces. He uses 2 wholes, no strips, 11 small squares and 13 slivers. He writes the number as 2.01113.

(a) Why can't a place in a number hold 11 or 13?

(b) Trade pieces so no kind has more than 9. Then write the number correctly.

ANSWER

(a) Each place holds one digit, 0 to 9; ten of a piece make one of the next bigger piece. (b) 2.123

SOLUTION

(a) A place holds a single digit. Ten of any piece make one piece of the place to its left, so a count of 10 or more must be traded.

(b) 13 slivers are 10 slivers and 3 slivers. Ten slivers (thousandths) make 1 small square (hundredth). Now there are 12 small squares and 3 slivers.

12 small squares are 10 and 2. Ten small squares (hundredths) make 1 strip (tenth). Now there are 2 wholes, 1 strip, 2 small squares and 3 slivers.

The number is 2.123. Check: 2 + 0.11 + 0.013 = 2.123.

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