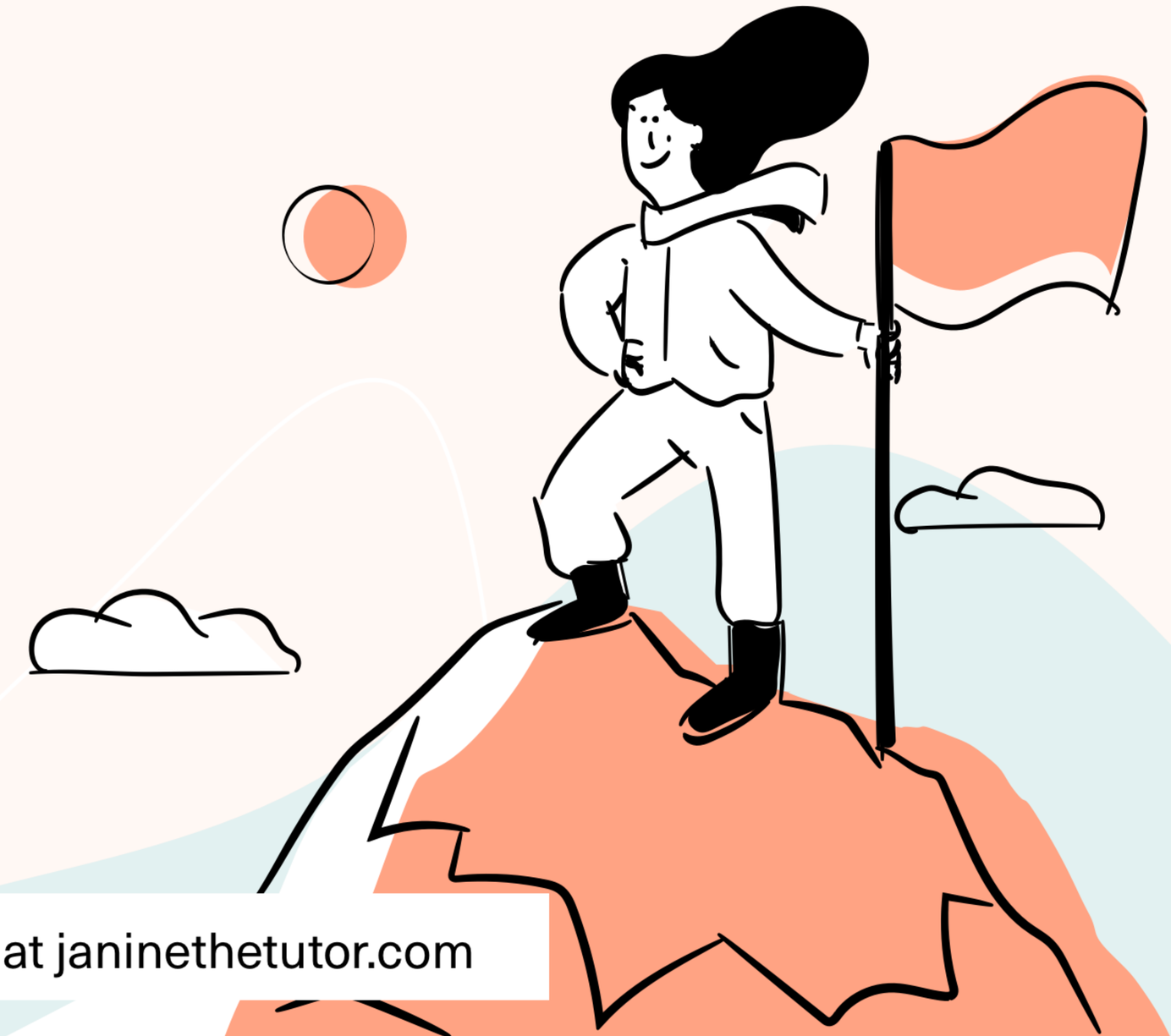
OneClass

Janine the Tutor

GRADE 5

Math Worksheet

Solutions Part 5



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TOPIC 9

Percentages

Concept Review:

Percentages refer to a ratio out of 100. For example, 5% means 5 units out of 100 units or 5/100.

Example:

If the book I am reading has 200 pages, and I have only read 20% of the book, how many pages have I read?

We know that 200 pages = 100% of the book. I have read 20% of the book.

In this case, we can find that estimate by multiplying the number of pages read and the total number of pages of the book over 100.

20% of 200 pages is: $\frac{20 \times 200}{100} = 40$

We have thus read **40 pages** of the book.

If the book I am reading has 150 pages, and I have only read 20% of the book, how many pages have I read?

20% of 150 pages is: $\frac{20 \times 150}{100} = 30$

If I am reading a book that has 180 pages, and I have read 60 pages, what percentage of the book have I read?

In this case, we can find that estimate by dividing the number of pages read and the total number of pages of the book times 100.

$$\frac{60}{180} \times 100 = 33.3\%$$

Practice Question:

If I answered 80% of the questions in my final exam, and there were 160 questions.
How many questions did I answer?

a) 80 questions
b) 114 questions
c) 128 questions
d) 146 questions
e) 160 questions

Solution:

Option C

80% of 160 questions: $\frac{80 \times 160}{100} = \mathbf{128}$

TOPIC 10

Ratios

Concept Review:

A ratio compares how many units of one thing there are compared to another.

Example:

Part to Part Ratio:

If in a crayon box, we have **2 blue crayons** and **1 red crayon**, then we can express this as a ratio:
2 : 1 which indicates that there are **2 blue crayons** to **1 red crayon**.

Part to Whole Ratio:

We can also express the number of red crayons over the total number of crayons in the crayon box. For example, we can say that there is **1 red crayon** in a box of **10 crayons**. We can then express this as a ratio:
1 : 10 which indicates that there is **1 red crayon** to **10 crayons**.

Scaling

Scaling
We can also use ratios to scale up or down.

Let's say we have a group of **8** students, **6** of whom are female and **2** of whom are male. If after a month, twice as many females and twice as many males join the class, how many female and male students would we have by the end of the month?
The ratio of the female to male students would be: **6 : 2**. Since twice as many female and twice as many male students joined the class, then we would have to multiply our ratio by **2**:
$6 \times 2 = 12$
$2 \times 2 = 4$
So we would now have **12 female** students and **4 male** students.

If on the contrary, out of the **8** students who had joined the class at first, half of the female students and half of the male students left the class by the end of the month, how many female and male students would we have by the end of the month?
The ratio of male to female students is: **6 : 2**. Since half as many female and male students left the class, then we would have to divide our ratio by **2**:
$6 \div 2 = 3$
$2 \div 2 = 1$
So we would now have **3 female** students and **1 male** student.

Practice Question:

If we had 20 books, and 5 of them were about math and 3 were about science, the ratio of math to science books would be:
a) 5 : 3
b) 5 : 20
c) 3 : 20
d) 5: 5
e) 3 : 3

Solution:
Option A.

In this case, we want to compare the number of math books to the number of science books. We know that there are 5 math books and 3 science books, so our ratio is: **5 : 3**.

Our recipe says that in order to make 1 batch of rice, we need 2 cups of water and 1 cup of rice. If I want to make 3 batches of rice, how many cups of water and rice do I need?

Our ratio would thus be:
2 : 1
If we want to do 3 batches of rice, then we need to multiply our ratio by 3.
$2 \times 3 = 6$
$1 \times 3 = 3$
So, we would need **6 cups of water** and **3 cups of rice**.