

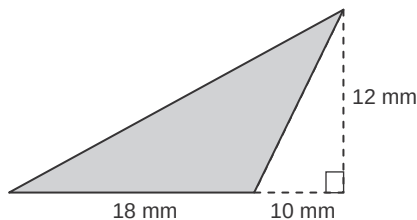
Perimeter and Area of Triangles

Standards: Calculate Perimeter and Area of a Triangle.

Examine work to find mistakes.

Task:

1) A student was given a task of finding the area of the triangle. This is how the student solved the problem:



$$A = \frac{1}{2} \cdot b \cdot h$$

$$A = \frac{1}{2} \cdot 10 \cdot 12$$

$$A = 60 \text{ mm}^2$$

Explain what mistakes (if any) the student made.

Redo the problem correctly (only of the problem was done wrong)

2) The second problem asked the student to find the perimeter of the triangle.

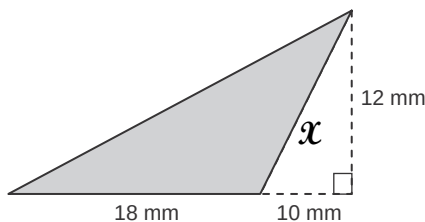
At first, the student discovered that he knows only one side of the triangle. He set out to find the lengths of the other two sides. He noticed that the segment on the bottom, the height and one of the sides make right triangle. So he decided to use the Pythagorean Theorem to find the length of one of the sides. Here is what he wrote:

$$10^2 + 12^2 = x^2$$

$$100 + 144 = x^2$$

$$244 = x^2$$

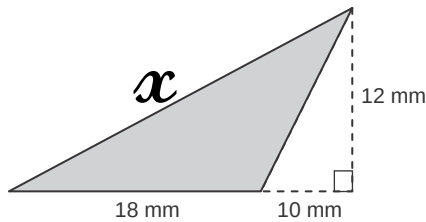
$$x = 15.6$$



Explain what mistakes (if any) the student made.

Redo the problem correctly (only of the problem was done wrong)

3) Then, the student decided that now he is in better situation and he knows the two sides of the triangle and he needs to find only one more.



$$18^2 + 12^2 = x^2$$

$$324 + 144 = x^2$$

$$468 = x^2$$

$$x = 21.6$$

Explain what mistakes (if any) the student made.

Redo the problem correctly (only of the problem was done wrong)

4) Then the student found the perimeter:

$$18 + 15.6 + 21.6 = 55.2$$

Perimeter of the triangle is 55.2 mm

Assuming that he found all the side lengths correctly, tell if the calculation of the perimeter is correct.

Explain what mistakes (if any) the student made.

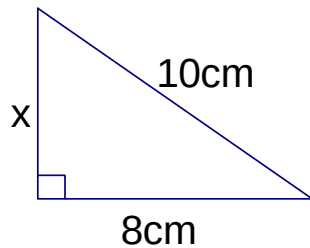
	2	1	0
Identify the mistakes	All the mistakes are identified correctly	Fewer mistakes are found correctly	None of the mistakes are identified
Identify the correct information to solve the problems	All the problems are solved using relevant information	Some of the problems use the relevant information	None of the problems use the correct information
Explain the correct way to solve a problem	All the problems have to explanation of the correct way to solve the problems	Some of the problems have the correct explanation	None of the problems have the correct explanation.
Find the perimeter of a triangle	The perimeter is found correctly		The perimeter is not found correctly

F1

Standard: Examine work to find mistakes

Task:

A student was asked to determine the length of the missing side of the right triangle. Here is what he wrote.



$$8^2 + 10^2 = x^2$$

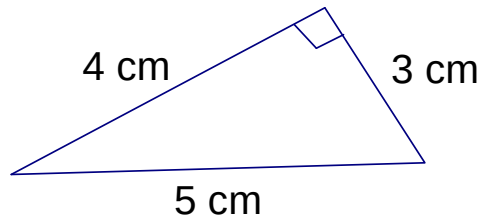
Decide if the student made a mistake in setting up the problem. Explain your decision.

F2

Standard: Examine work to find mistakes

Task:

To find the area of the triangle Mary wrote the following



$$A = \frac{1}{2} \cdot 3 \cdot 5$$

$$A = 7.5 \text{ cm}^2$$

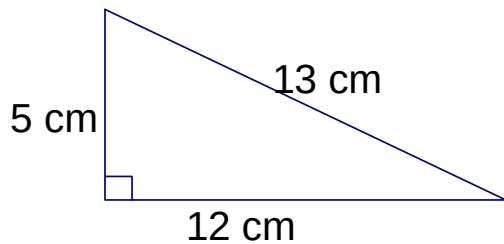
Decide if the student made a mistake in setting up the problem. Explain your decision.

F3

Standard: Examine work to find mistakes

Task:

John was asked to find the area of the triangle. Here is how he solved the problem



$$A = 5 \cdot 12$$

$$A = 60 \text{ cm}^2$$

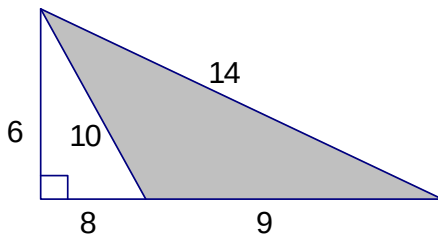
Decide if the student made a mistake in setting up the problem. Explain your decision.

F4

Standard: Examine work to find mistakes

Task:

To find the perimeter of the triangle, the student incorrectly added the following sides.



$$\mathcal{P} = 14 + 6 + 9$$

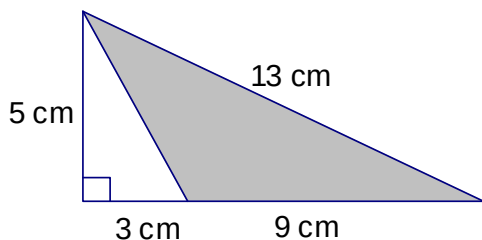
$$\mathcal{P} = 29$$

Explain what mistake the student made. Redo the problem correctly.

Standard: Examine work to find mistakes

Task:

Students were asked to find the area of the shaded triangle. Examine their work for possible mistakes. For each work explain the mistake. Provide corrections, if necessary.



Student 1

$$A = \frac{1}{2} \cdot 3 \cdot 5$$

$$A = 7.5 \text{ cm}^2$$

Student 2

$$A = \frac{1}{2} \cdot 12 \cdot 5$$

$$A = 30 \text{ cm}^2$$

Student 3

$$a = \frac{1}{2} \cdot 9 \cdot 5$$

$$a = 22.5 \text{ cm}^2$$
