

Angles on a Straight Line

Angles on a Straight Line

1a. James is measuring angles on a straight line.
He says:

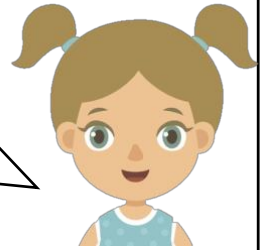


There are two angles on the line. One is 110° and the other is 60° .

Could he be right? Explain how you know.



1b. Harper is measuring angles on a straight line.
She says:

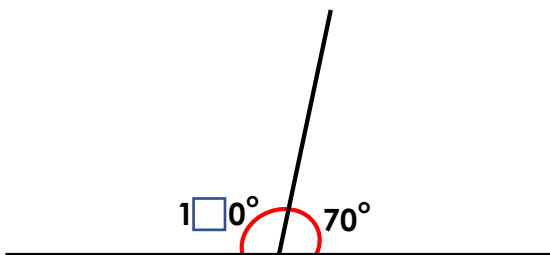


There are two angles on the line. One is 100° and the other is 80° .

Could she be right? Explain how you know.

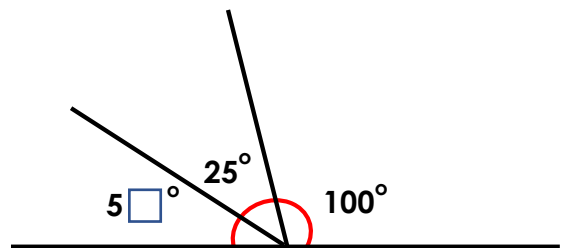


2a. One of the angles below has lost a digit. What should the missing digit be?



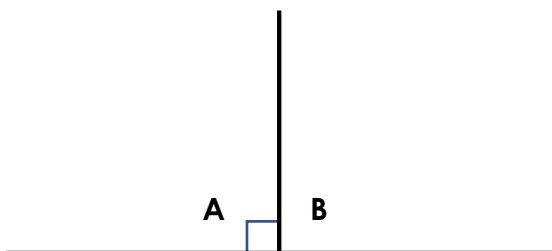
Angles not drawn to scale

2b. One of the angles below has lost a digit. What should the missing digit be?



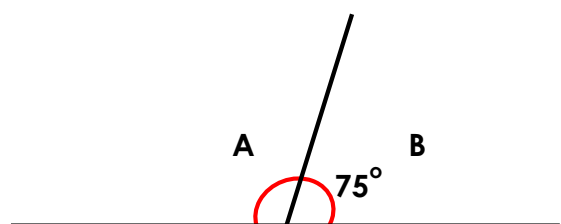
Angles not drawn to scale

3a. John says angle B is the same as angle A. Do you agree? Explain your answer.



Angles not drawn to scale

3b. Theresa says that angle A is the same as angle B. Do you agree. Explain your answer.



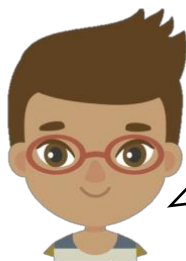
Angles not drawn to scale

Angles on a Straight Line

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4a. Tyler is measuring angles on a straight line.

He says:



There are three angles on the line. One is 110° , one is 10° and the other is 60° .

Could he be right? Explain how you know.



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4b. Isabelle is measuring angles on a straight line.

She says:



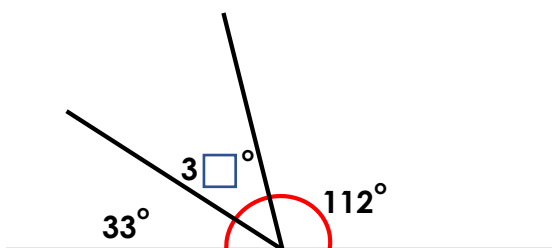
There are three angles on the line. One is 100° , one is 30° and the other is 55° .

Could she be right? Explain how you know.



R

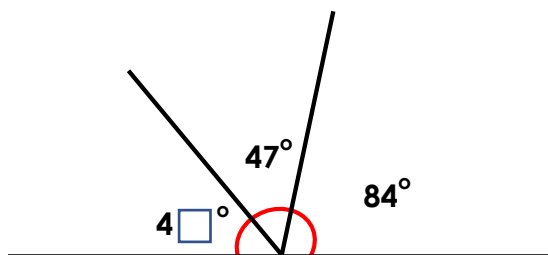
5a. One of the angles below has lost a digit. What should the missing digit be?



Angles not drawn to scale

PS

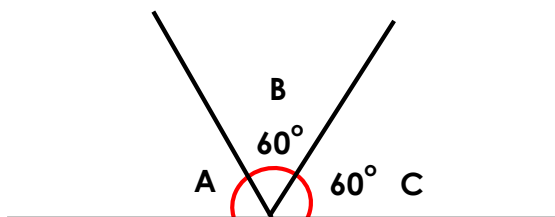
5b. One of the angles below has lost a digit. What should the missing digit be?



Angles not drawn to scale

PS

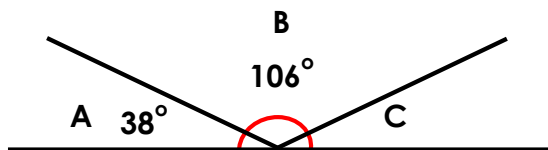
6a. Jim says that angle A is the same as angle B and C. Do you agree? Explain your answer.



Angles not drawn to scale

R

6b. Jen says that angle C is the same as angle A. Do you agree? Explain your answer.



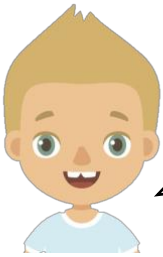
Angles not drawn to scale

R

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7a. Eryk is measuring angles on a straight line.
He says:



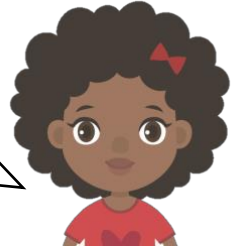
There are three angles on a line. One is 19° , one is a right angle and the other is 61° .

Could he be right? Explain how you know.



R

7b. Kristi is measuring angles on a straight line.
She says:



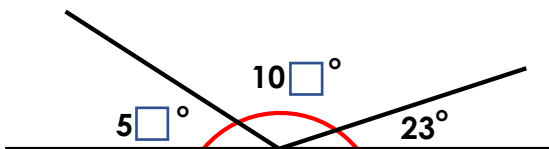
There are three angles on the line. One is 89° degrees, one is a right angle and the other is 1° .

Could she be right? Explain how you know.



R

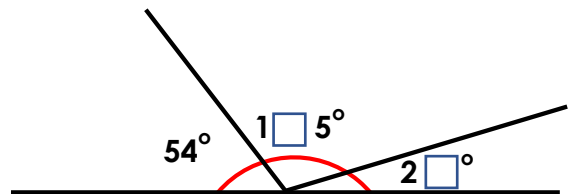
8a. Two of the angles below have lost a digit. What should the missing digits be?



Angles not drawn to scale

PS

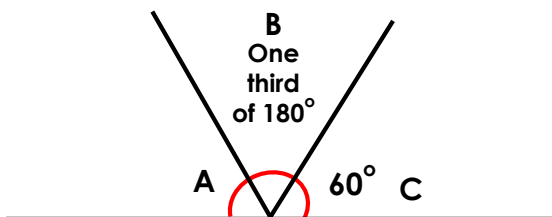
8b. Two of the angles below have lost a digit. What should the missing digits be?



Angles not drawn to scale

PS

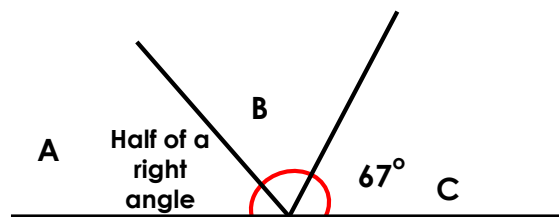
9a. Pam says that angle A and B are the same as angle C if each angle is equal. Do you agree? Explain your answer.



Angles not drawn to scale

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9b. Tim says that angle B is the same as angle C. Do you agree? Explain your answer.



Angles not drawn to scale

R

Reasoning and Problem Solving Angles on a Straight Line

Developing

- 1a. James cannot be right as his angles only total 170° .
2a. The missing digit is a 1.
3a. John is correct as both angles A and B are 90° angles. Two 90° angles makes 180° .

Expected

- 4a. Tyler could be right as his angles total 180° .
5a. The missing digit is a 5.
6a. Jim is correct as $60^\circ + 60^\circ = 120^\circ$.
 $180^\circ - 120^\circ = 60^\circ$ which is the same as angle B and C.

Greater Depth

- 7a. Eryk cannot be right as his angles total 170° .
8a. The missing digits are a 4 and a 3.
9a. Pam is correct as one third of $180^\circ = 60^\circ$ so $60^\circ + 60^\circ = 120^\circ$. $180^\circ - 120^\circ = 60^\circ$ which is the same as angle C at 60° .

Reasoning and Problem Solving Angles on a Straight Line

Developing

- 1b. Harper could be right as her angles total 180° .
2b. The missing digit is a 5.
3b. Theresa is incorrect as $180^\circ - 75^\circ = 105^\circ$ so angle A must be 105° which is different to angle B at 75° .

Expected

- 4b. Isabelle cannot be right as her angles total 185° .
5b. The missing digit is a 9.
6b. Jen is incorrect as $106^\circ + 38^\circ = 144^\circ$.
 $180^\circ - 144^\circ = 36^\circ$ which is different to angle A at 38° .

Greater Depth

- 7b. Kristi could be right as her angles total 180° .
8b. The missing digits are a 0 and a 1.
9b. Tim is incorrect as half of a right angle is 45° so $45^\circ + 67^\circ = 112^\circ$. $180^\circ - 112^\circ = 68^\circ$ which is different to angle C at 67° .