

# Measuring with a Protractor 1

# Measuring with a Protractor 1

1a. Who has measured the angle correctly?

**Lia**

The angle is  $60^\circ$ .

**Thalia**

The angle is  $120^\circ$ .

Explain any errors.



5 R

1b. Who has measured the angle correctly?

**Judy**

The angle is  $30^\circ$ .

**Mathias**

The angle is  $40^\circ$ .

Explain any errors.



5 R

2a. The question said 'Draw 2 angles which, when put together, will still be acute'. Who has succeeded?

**Lee**

**Chrissie**



5 PS

2b. The question said 'Draw 2 angles which, when put together, will still be acute'. Who has succeeded?

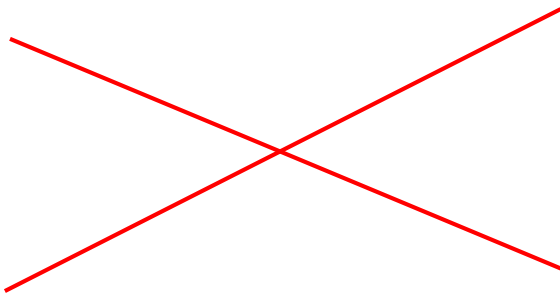
**Jessica**

**Kyle**



5 PS

3a. How many acute angles can you see? Mark them with an arc.

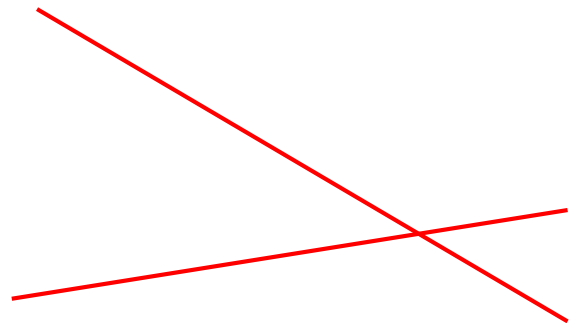


Measure to confirm the angles are  $<90^\circ$ .



5 PS

3b. How many acute angles can you see? Mark them with an arc.



Measure to confirm the angles are  $<90^\circ$ .



5 PS

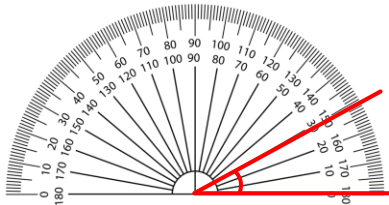
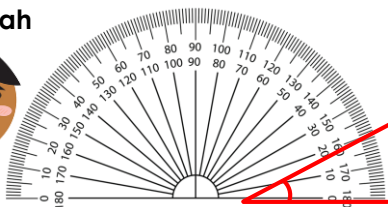
# Measuring with a Protractor 1

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4a. Who has measured the angle correctly?

Hadassah

The angle is 20°.



Naomi

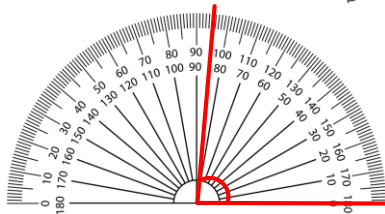
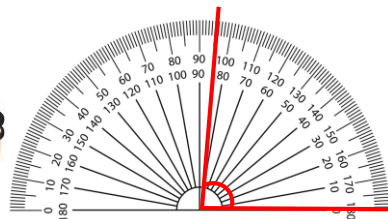
The angle is 30°.



4b. Who has measured the angle correctly?

Kristian

The angle is 95°.



Katy

The angle is 85°.



Explain any errors.

5 R

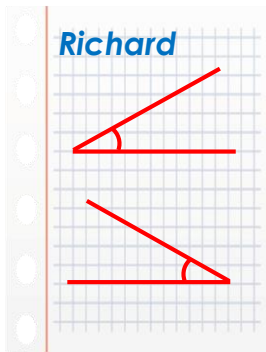


Explain any errors.

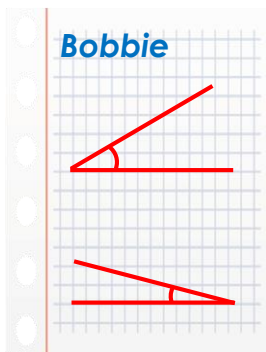
5 R

5a. The question said 'Draw 2 angles which, when put together, will still be acute'. Who has succeeded?

Richard

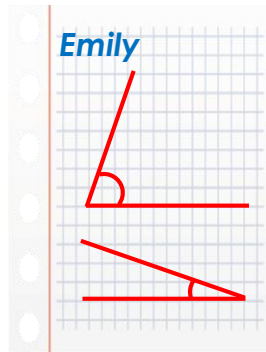


Bobbie

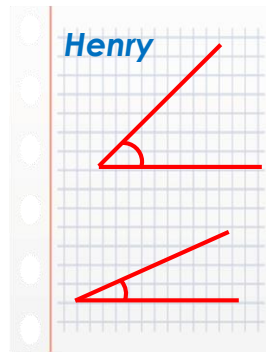


5b. The question said 'Draw 2 angles which, when put together, will still be acute'. Who has succeeded?

Emily



Henry

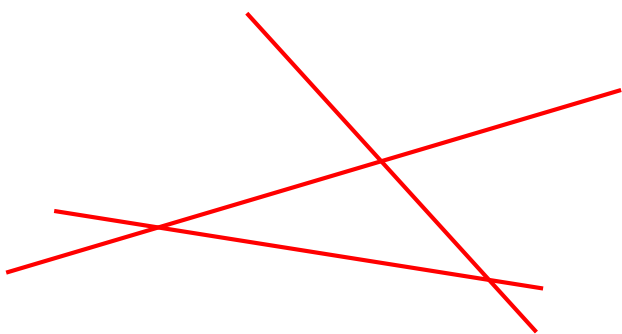


5 PS



5 PS

6a. How many acute angles can you see? Mark them with an arc.

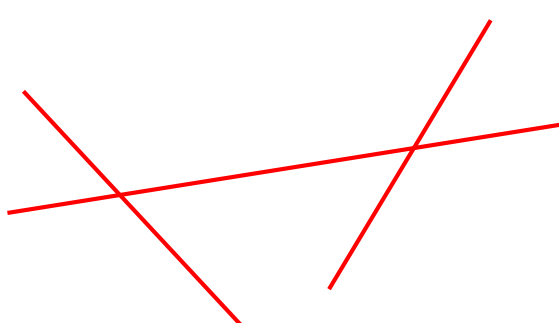


Measure to confirm the angles are  $<90^\circ$ .



5 PS

6b. How many acute angles can you see? Mark them with an arc.



Measure to confirm the angles are  $<90^\circ$ .

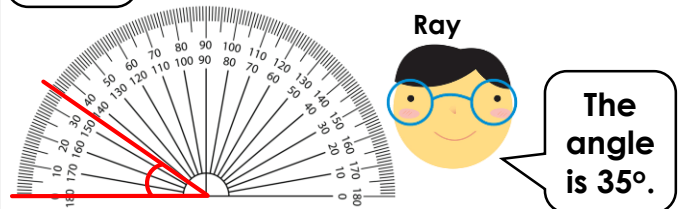
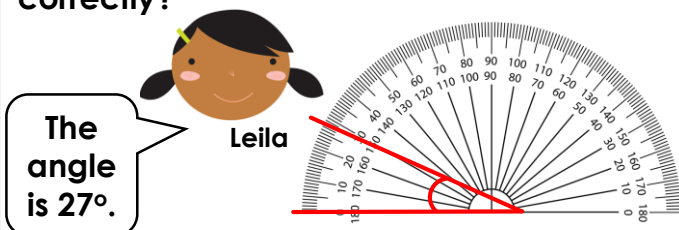


5 PS

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7a. Who has measured the angle correctly?

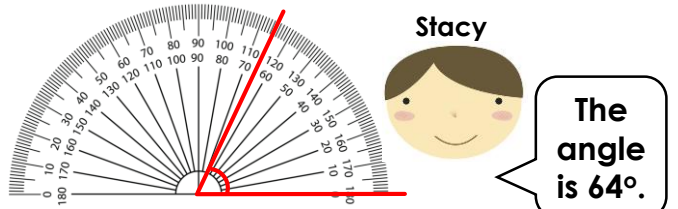
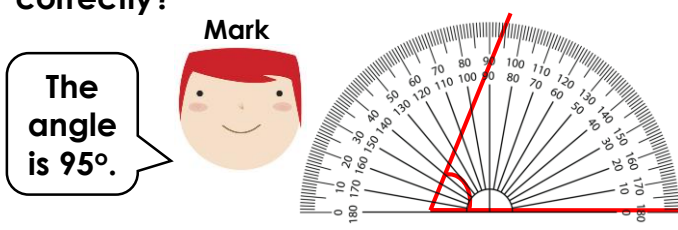


Explain any errors.



5 R

7b. Who has measured the angle correctly?

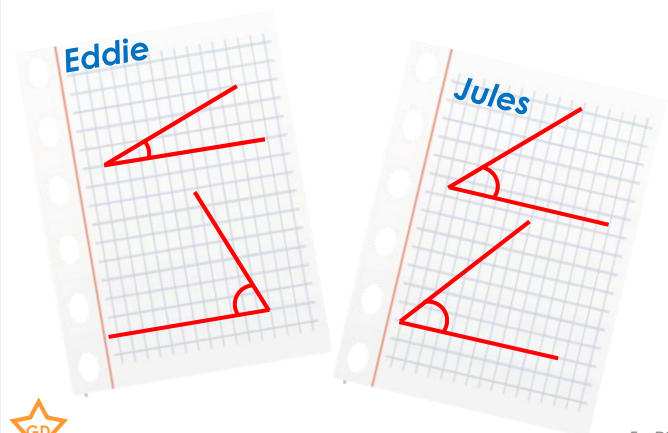


Explain any errors.



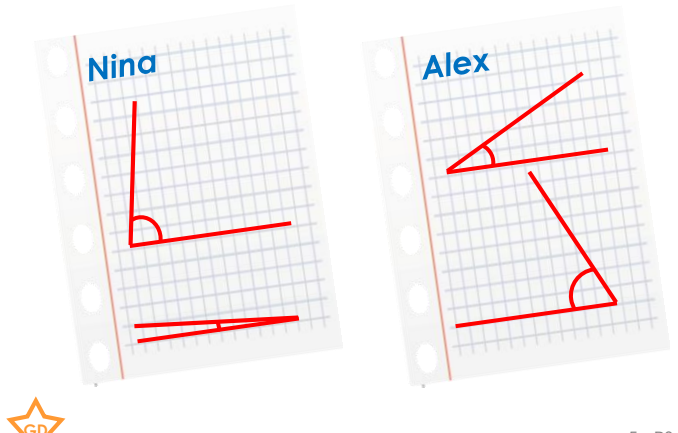
5 R

8a. The question said 'Draw 2 angles which, when put together, will still be acute'. Who has succeeded?



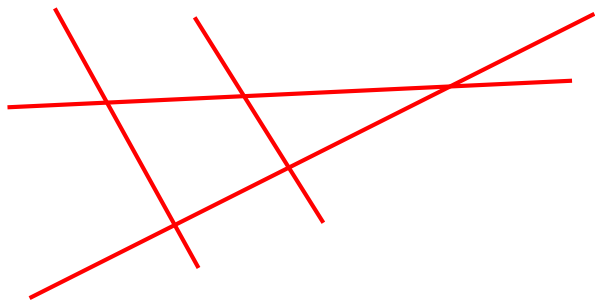
5 PS

8b. The question said 'Draw 2 angles which, when put together, will still be acute'. Who has succeeded?



5 PS

9a. How many acute angles can you see? Mark them with an arc.

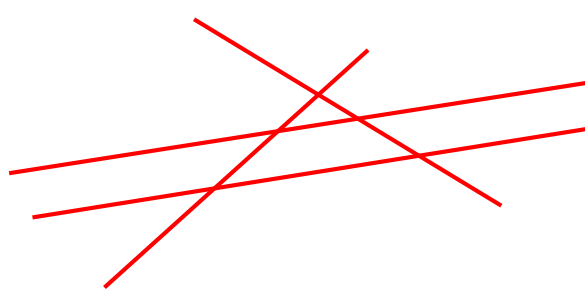


Measure to confirm the angles are acute.



5 PS

9b. How many acute angles can you see? Mark them with an arc.



Measure to confirm the angles are acute.



5 PS

## Reasoning and Problem Solving Measuring with a Protractor 1

Due to line thickness children's measurements may vary from answers by around  $1^\circ$ .

### Developing

1a. Lia is correct. Thalia has read the outer scale instead of the inner scale.

2a. Chrissie is correct – her angles are approximately  $40^\circ$  and  $40^\circ$ , so would create an angle of  $80^\circ$  together. Lee's are approximately  $40^\circ$  and  $60^\circ$  which would be  $>90^\circ$ .

3a.

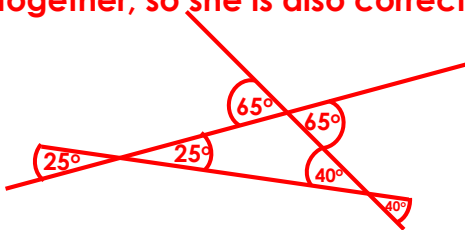


### Expected

4a. Naomi is correct. Hadassah has forgotten to make sure the base line of the angle is lined up with the bottom line on the protractor.

5a. Richard's angles both measure approximately  $30^\circ$  so would be approximately  $60^\circ$  together and still acute. Bobbie's angles measure approximately  $15^\circ$  and  $30^\circ$  so would be approximately  $45^\circ$  together, so she is also correct.

6a.

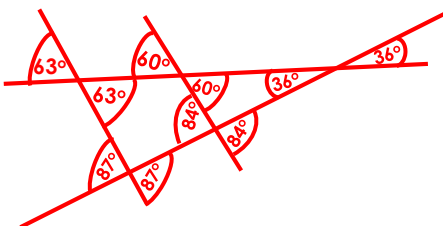


### Greater Depth

7a. Ray is correct. Leila has not aligned the corner of the angle with the middle of the protractor.

8a. Eddie's angles measure approximately  $68^\circ$  and  $21^\circ$  so would be acute when combined. Jules' angles measure approximately  $44^\circ$  and  $50^\circ$  so would not be acute. When combined they would be  $>90^\circ$ .

9a.



## Reasoning and Problem Solving Measuring with a Protractor 1

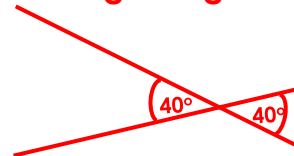
Due to line thickness children's measurements may vary from answers by around  $1^\circ$ .

### Developing

1b. Mathias is correct. Judy has not put the corner of the angle into the centre of the protractor.

2b. Jessica is correct – her angles are approximately  $30^\circ$  and  $40^\circ$ , so would create an angle of approximately  $70^\circ$ . Kyle's are approximately  $70^\circ$  and  $20^\circ$  which create a right angle.

3b.

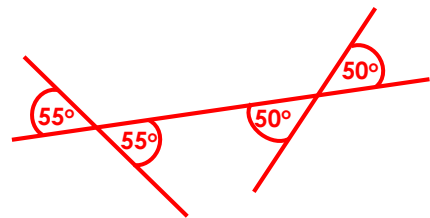


### Expected

4b. Katy is correct. Kristian has read the outer scale, instead of the inner scale.

5b. Emily's angles measure approximately  $70^\circ$  and  $20^\circ$  so combined would be approximately  $90^\circ$  and not acute. Henry's angles measure approximately  $25^\circ$  and  $45^\circ$  so they would create an acute angle of approximately  $70^\circ$ .

6b.



### Greater Depth

7b. Stacy is correct. Mark has misaligned the corner of the angle, it should be in the middle of the protractor, he has also read the inner scale instead of the outer scale.

8b. Nina's angles measure  $80^\circ$  and  $5^\circ$  so would be acute when combined measuring  $85^\circ$ . Alex's measure  $65^\circ$  and  $28^\circ$  so would be  $93^\circ$  combined, so not acute.

9b.

