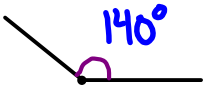
Warm Up Gr. 6

Date: Mar. 28

Measure that angle with a protractor

a

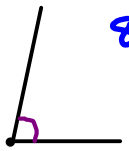
obtuse



140°

b

acute



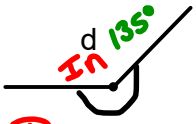
80°

c

Straight

180°

d



In 135°

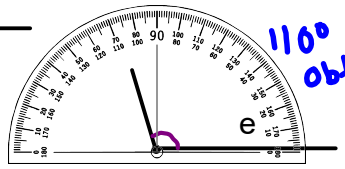
Reflex

= 360° − inside

= 360° − 135°

= 225°

e



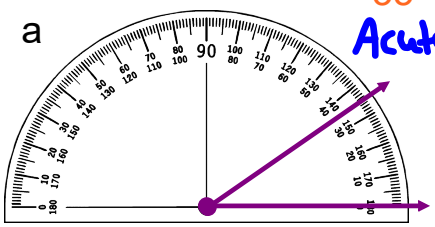
110°

obtuse

Practice Page 136

#1) What is the measure of each angle? Explain how you know.

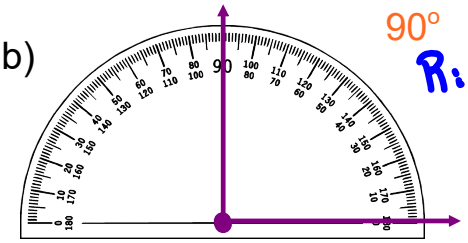
a



35°

Acute

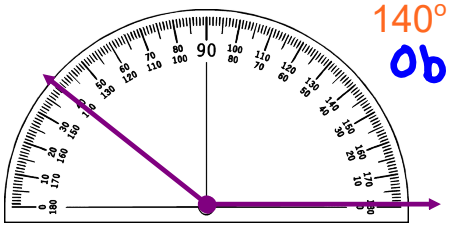
b)



90°

Right

c)



140°

Obtuse

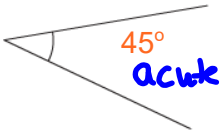
TIP

2. For each angle:
   - Choose an appropriate reference angle: 45°, 90°, 180°
     Estimate the size of the angle.
   - Use a protractor to find the angle measure.
     How close was your estimate to the actual measure? Explain.
   - Name each angle as acute, right, obtuse, or straight.

Sample Solutions

2. a) Estimate: about 45°; Measure: 35°
My estimate was close to the actual measure: 35° is close to 45°. The angle is acute.
b) Estimate: a bit smaller than a right angle, about 80°
Measure: 76°
My estimate was close to the actual measure: 76° is close to 80°. The angle is acute.
c) Estimate: a bit larger than a right angle, about 100°
Measure: 115°
My estimate was fairly close to the actual measure: 100° is fairly close to 115°. The angle is obtuse.
d) Estimate: about one-half the size of a 45° angle, about 20°; Measure: 21°
My estimate was very close to the actual measure: 20° is very close to 21°. The angle is acute.

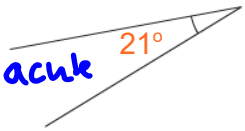
a)



b)

c)

d)



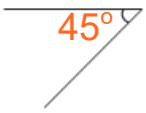
e) Estimate: a bit larger than a right angle, about 100°
Measure: 107°
My estimate was close to the actual measure: 100° is close to 107°. The angle is obtuse.
f) Estimate: a bit smaller than a straight angle, about 170°
Measure: 165°
My estimate was close to the actual measure: 170° is close to 165°. The angle is obtuse.

e)

f)

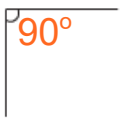
3. Which of these angles do you think measures 45°?
Check your estimates with a protractor. What did you find out?

a)



b)

c)

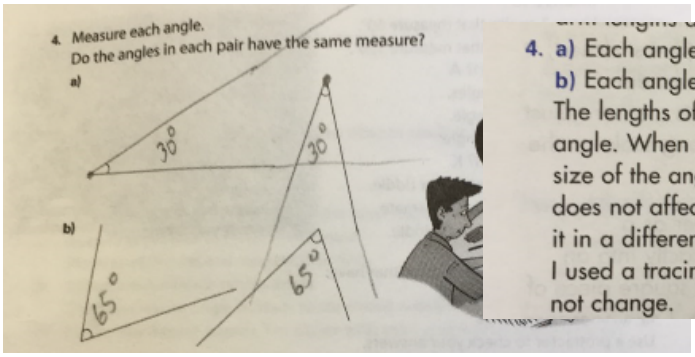


d)

e)

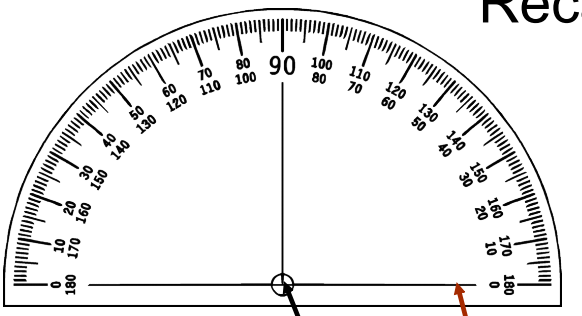
f)

3. I think the angles in parts a, b, and e measure 45°.
My estimates were correct. I had to trace the angles and extend the arms to check. An angle of 45° can have different arm lengths and different orientations.



4. a) Each angle measures 30°.
b) Each angle measures 65°.
The lengths of the arms do not affect the measure of the angle. When I shorten or extend the arms of an angle, the size of the angle does not change. The position of the angle does not affect the measure. I can trace an angle, then draw it in a different orientation on the page. Since I used a tracing of the angle, the size of the angle did not change.

Recall



This is a standard protractor. It is used to measure angles, in degrees.

this arm must be placed on one of the arms

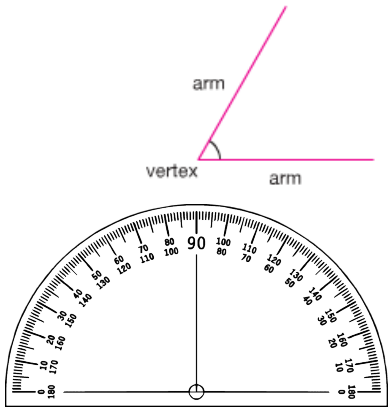
this **center** must be placed in the vertex of the angle

Recall

Connect

A protractor has 2 scales so that we can measure angles opening different ways.

➤ To measure this angle using a protractor:



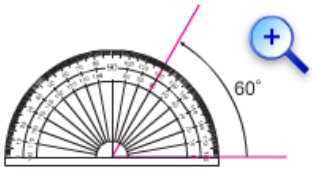
Step 1

Place the protractor on top of the angle.
The vertex of the angle is at the centre of the protractor.
One arm of the angle lines up with the base line of the protractor.

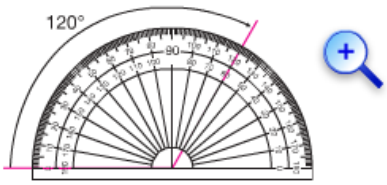
Recall

Step 2

Find where the other arm of the angle meets the protractor.
Since the arm along the base line passes through 0° on the inner scale, use the inner scale.
Follow the inner scale around.
The angle measures 60°.



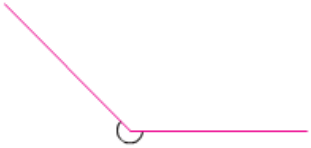
➤ This diagram shows when you would use the outer scale to measure an angle.



Since the arm along the base line of this angle passes through 0° on the outer scale, use the outer scale. The angle measures 120°.

Recall

➤ We can use a protractor to measure this reflex angle. A reflex angle is the outside angle of an acute, right, or obtuse angle.

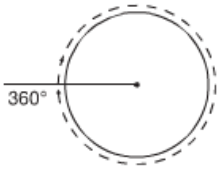


Step 1

Use the protractor to measure the inside angle.
The inside angle measures _____

Step 2

A complete turn is 360°.

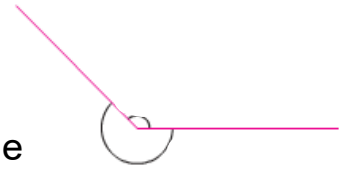


REFLEX

To find the measure of the reflex angle, we subtract:

360° - inside angle
=

=

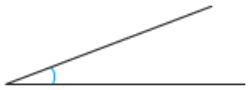


Must study

Recall

➤ We name angles according to their measures in degrees.

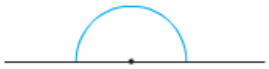
The measure of an **acute angle** is less than 90°.



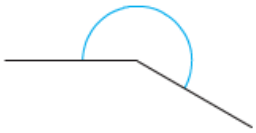
The measure of a **right angle** is 90°.

The measure of an **obtuse angle** is between 90° and 180°.

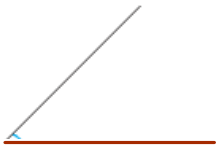
The measure of a **straight angle** is 180°.



The measure of a **reflex angle** is between 180° and 360°.



The measure of one-half a right angle is 45°.



To estimate the measure of an angle, we can use 45°, 90°, and 180° as reference angles.

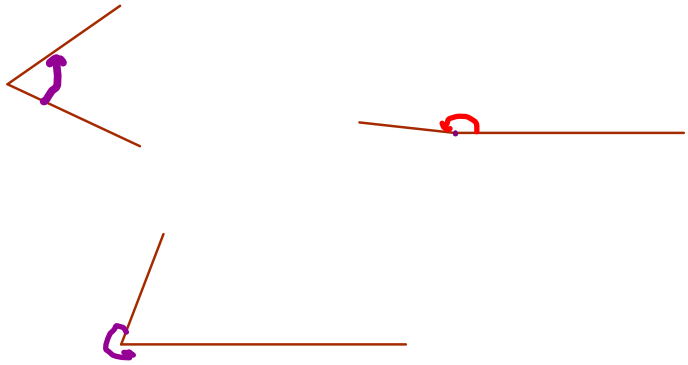
#1) What is the measure of each angle?

2) For each angle:

choose an appropriate reference angle: 45°, 90°, or 180°. Estimate the size of the angle.

Use a protractor and measure the angle (was your estimate close)

Name eache angle as acute, right, obtuse, reflex, or straight.



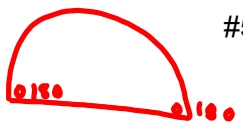
Class/Homework

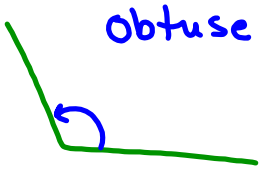
Page 136 - 138

Worksheet - measuring angles with protractors

#5,6,7,9 abc

5)





Obtuse

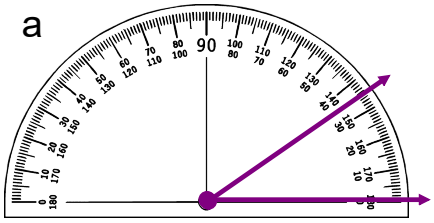
→ Looking at the angle you can label it as acute, right, obtuse Straight or reflex (by definition)

→ So when I use the protractor my angle degree must match the name's definition.

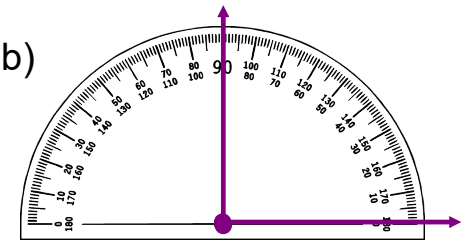
Practice Page 136

#1) What is the measure of each angle? Explain how you know.

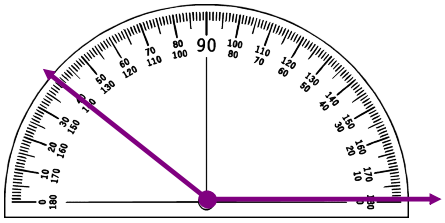
a



b)



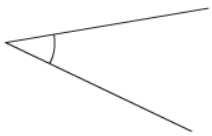
c)



TIP

2. For each angle:
   - Choose an appropriate reference angle: 45°, 90°, 180°
     Estimate the size of the angle.
   - Use a protractor to find the angle measure.
     How close was your estimate to the actual measure? Explain.
   - Name each angle as acute, right, obtuse, or straight.

a)



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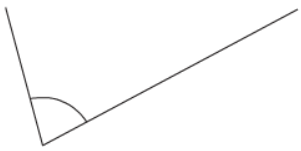

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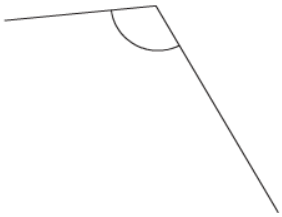
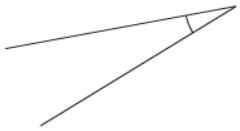
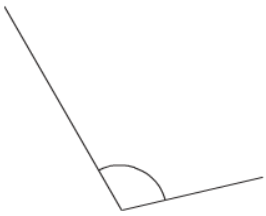


d)

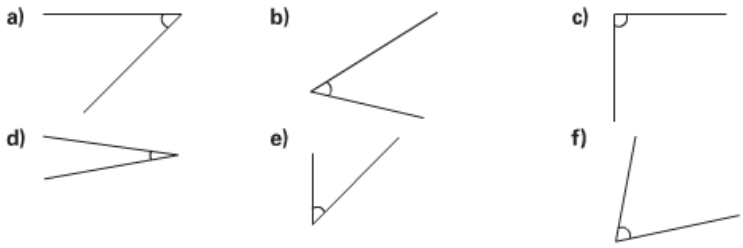


e)



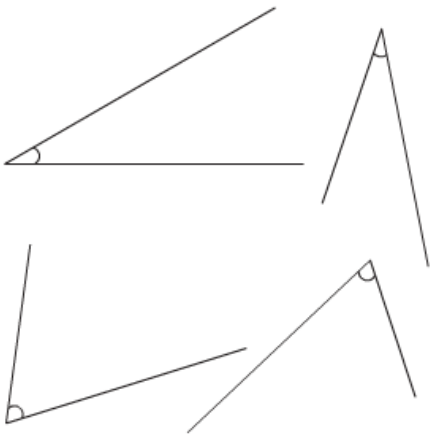
f)

3. Which of these angles do you think measures 45°?
Check your estimates with a protractor. What did you find out?



4. Measure each angle.
Do the angles in each pair have the same measure?

a)



b)

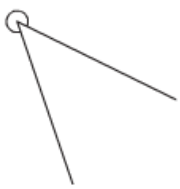
Do the lengths of the arms affect the measure of the angle? Explain.
Does the position of the angle affect the measure? Explain.

5. How can you tell whether you used the correct scale on the protractor to measure an angle?
Include an example in your explanation.

Move to see answers

6. Use a protractor to find the measure of each reflex angle.
How can you check that your measure is correct?

a)



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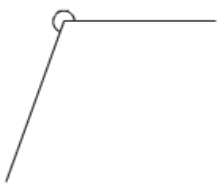

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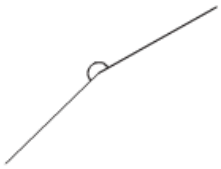


6. Use a protractor to find the measure of each reflex angle.
How can you check that your measure is correct?

Move to see answers

7. Use a protractor to solve each riddle.

a) I have 4 equal angles.
Each angle measures 90°.
Which letter am I?

b) I do not have any angles that measure 90°.
I have 3 angles that measure 60°.
I have 2 angles that measure 120°.
Which letter am I?

c) I have 2 right angles.
I have 1 acute angle.
I have 1 obtuse angle.
Which letter am I?

d) Make up your own letter riddle.
Trade riddles with a classmate.
Solve your classmate's riddle.

7.

Move to see answers

8. Name 4 objects in your classroom that have:
a) an angle greater than 100°
b) an angle less than 60°
Use a protractor to check your answers.

7.

8.

Move to see answers

9. A student measured this angle and said it measured 60°. Do you agree? Explain.

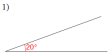
Move to see answers

Math 6 Unit 4 Angles Name_____ ID: 1

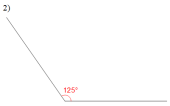
Worksheet: Maeasuring Angles with Protractors Date_____

Find the measure of each angle to the nearest degree.

1)



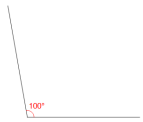
2)



3)

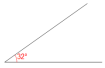
4)

5)



6)

7)



8)

9)

10)

Attachments

Worksheet Maeasuring Angles with Protractors.pdf