Angles as Geometric Shapes

Explore ideas and representations

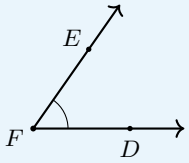
Name _____ **Date** _____ **Score** _____ / 6

QUICK REVIEW

An angle is made by two rays with one common endpoint, called the vertex. The vertex letter goes in the middle of a three-letter angle name. An acute angle is less than $90°$. A right angle is exactly $90°$; an obtuse angle is wider but less than a straight angle.

Worked example

Name the angle, vertex and rays in the drawing.



1. The shared endpoint is F, so it goes in the middle: $\angle DFE$.

2. One ray starts at F and passes through D: $\overrightarrow{FD}$.

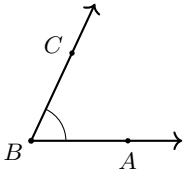
3. The other starts at F and passes through E: $\overrightarrow{FE}$.

Answer: $\angle DFE$; vertex F; rays $\overrightarrow{FD}$ and $\overrightarrow{FE}$.

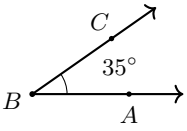
Practice Problems

Show your thinking.

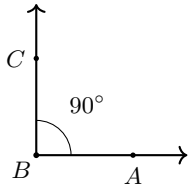
1. Use the diagram to name its vertex and two rays. Give a three-letter angle name.



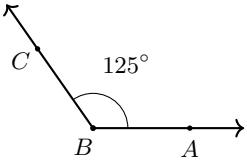
2. Classify this opening as acute, right, or obtuse.



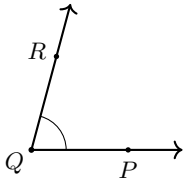
3. What type of angle is shown by the marked measure?



4. Compare this angle with a right angle and classify it.



5. A student names the shown angle $\angle QPR$ but calls Q its vertex. Repair the name, keeping vertex Q.



6. Add a ray from V to make an acute angle with $\overrightarrow{VR}$. Label a point S on your new ray.



Answer Key

1. Vertex B; $\overrightarrow{BA}, \overrightarrow{BC}$; $\angle ABC$ or $\angle CBA$.
2. Acute.
3. Right.
4. Larger than a right angle; obtuse.
5. $\angle PQR$ or $\angle RQP$.
6. For example, draw $\overrightarrow{VS}$ at $45°$ above $\overrightarrow{VR}$.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Both rays start at B.

2. The ray through A is $\overrightarrow{BA}$; the ray through C is $\overrightarrow{BC}$.

3. Put B in the middle to write $\angle ABC$ or $\angle CBA$.

Problem 2

1. The rays meet at B, so this is the vertex.

2. The opening is $35°$; $35 < 90$ compares it with a right angle.

3. An opening of $35°$ is acute; changing ray lengths would not change that opening.

Problem 3

1. The rays meet at B, so this is the vertex.

2. The opening is $90°$; $90 = 90$ compares it with a right angle.

3. An opening of $90°$ is right; changing ray lengths would not change that opening.

Problem 4

1. The rays meet at B, so this is the vertex.

2. The opening is $125°$; $90 < 125 < 180$ compares it with a right angle.

3. An opening of $125°$ is obtuse; changing ray lengths would not change that opening.

Problem 5

1. The diagram has both rays starting at Q.

2. In $\angle QPR$, the middle letter is P, so that name would put the vertex at P.

3. Use Q in the middle: $\angle PQR$ or $\angle RQP$.

Problem 6

1. The new ray must begin at the given endpoint V.

2. Choose a $45°$ opening; $0 < 45 < 90$ makes it acute.

3. Label the new ray $\overrightarrow{VS}$ and the angle $\angle RVS$.

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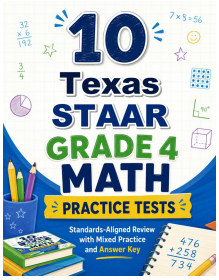

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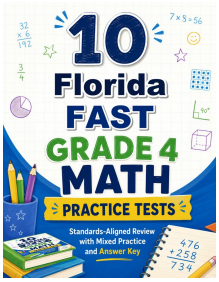

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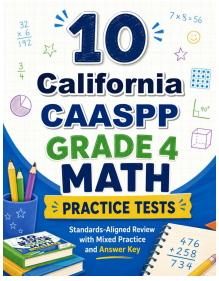

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