Angles as Geometric Shapes

Spot mistakes, reason, and work backward

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

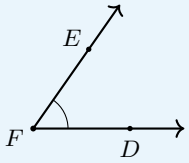
Name the angle, vertex and rays in the drawing.

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: $\overrightarrow{FE}$.

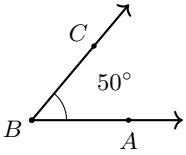
Answer: $\angle DFE$; vertex F; rays $\overrightarrow{FD}$ and $\overrightarrow{FE}$.



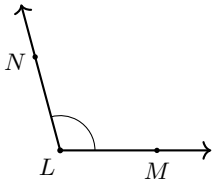
Practice Problems

Show your thinking.

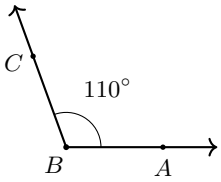
1. A child extends both rays of a $50°$ angle and says it becomes $100°$. Correct the idea.



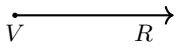
2. The rays are $\overrightarrow{LM}$ and $\overrightarrow{LN}$. Find their common endpoint and name the angle.



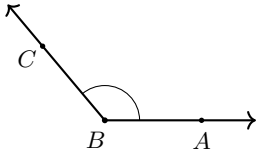
3. A turn has this opening. Is it smaller or larger than a right angle?



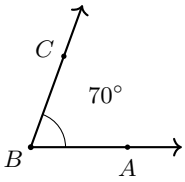
4. Draw one new ray from V to create a right angle with the given ray. Name the vertex.



5. Can $\angle ABC$ and $\angle CBA$ name the same opening? Use the drawing.



6. A hinged lid opens $70°$. Classify the opening without using the drawn ray lengths.



Answer Key

1. It stays $50°$.
2. Endpoint L; $\angle MLN$ or $\angle NLM$.
3. Larger than a right angle; obtuse.
4. A vertical upward ray from V; vertex V.
5. Yes.
6. Acute.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Extending a ray changes its drawn length, not its direction.
2. The two directions still differ by $50°$.
3. $50° < 90°$, so the angle remains acute, not a $100°$ obtuse angle.

Problem 2

1. Both ray names begin with L, so both rays start at L.
2. The outer points are M and N.
3. Write L between them: $\angle MLN$ or $\angle NLM$.

Problem 3

1. The rays meet at B, so this is the vertex.
2. The opening is $110°$; $90 < 110 < 180$ compares it with a right angle.
3. An opening of $110°$ is obtuse; changing ray lengths would not change that opening.

Problem 4

1. The given ray points horizontally right from V.
2. An upward ray differs in direction by $90°$.
3. The common endpoint remains V, so V is the vertex.

Problem 5

1. Both names have middle letter B, giving the same vertex.
2. Both use rays $\overrightarrow{BA}$ and $\overrightarrow{BC}$.
3. Reversing the outer letters does not replace either ray, so the opening is unchanged.

Problem 6

1. The rays meet at B, so this is the vertex.
2. The opening is $70°$; $70 < 90$ compares it with a right angle.
3. An opening of $70°$ is acute; changing ray lengths would not change that opening.

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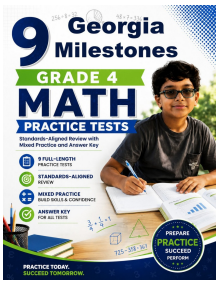

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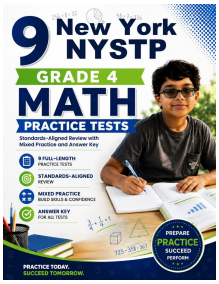

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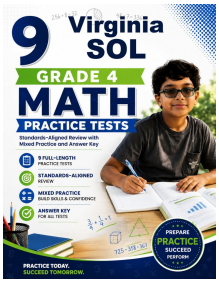

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