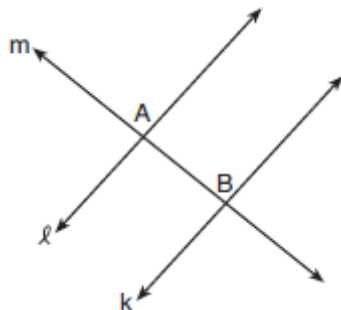


G.G.27: Write a proof arguing from a given hypothesis to a given conclusion

1. 010814b, P.I. G.G.27

In the accompanying diagram, line ℓ is perpendicular to line m at A , line k is perpendicular to line m at B , and lines ℓ , m , and k are in the same plane.

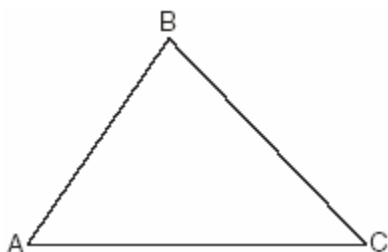


Which statement is the first step in an indirect proof to prove that ℓ is parallel to k ?

- [A] Assume that ℓ is not parallel to k .
- [B] Assume that ℓ is perpendicular to k .
- [C] Assume that ℓ is not perpendicular to m .
- [D] Assume that ℓ , m , and k are not in the same plane.

2. 080230b, P.I. G.G.27

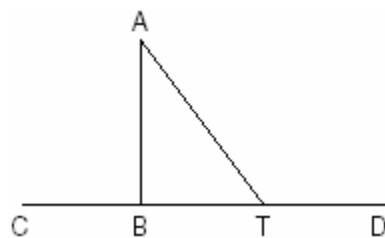
In the accompanying diagram, $\triangle ABC$ is *not* isosceles. Prove that if altitude \overline{BD} were drawn, it would *not* bisect \overline{AC} .



NAME: _____

3. 060425b, P.I. G.G.27

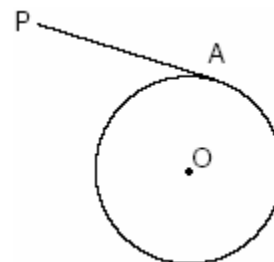
Given: $\triangle ABT$, \overline{CBTD} , and $\overline{AB} \perp \overline{CD}$



Write an indirect proof to show that \overline{AT} is *not* perpendicular to \overline{CD} .

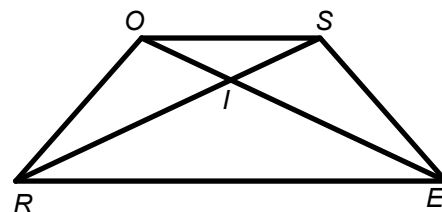
4. 010432b, P.I. G.G.27

In the accompanying diagram of circle O , \overline{PA} is drawn tangent to the circle at A . Place B on \overline{PA} anywhere between P and A and draw \overline{OA} , \overline{OP} , and \overline{OB} . Prove that \overline{OB} is not perpendicular to \overline{PA} .



5. fall9933b, P.I. G.G.27

Given trapezoid $ROSE$ with diagonals \overline{RS} and \overline{EO} intersecting at point I , prove that the diagonals of the trapezoid do *not* bisect each other.



G.G.27: Write a proof arguing from a given hypothesis to a given conclusion

[1] A _____

[4] The proof in column or paragraph form explains clearly, by using contradiction or indirect proof, that altitude \overline{BD} does not bisect side \overline{AC} .

[3] An appropriate conclusion is shown, without specifying that congruent triangles are actually formed only if a triangle is isosceles.

[2] An appropriate diagram is drawn and some evidence that congruence may be an issue is shown, but no further reasoning is given or no conclusion is drawn.

[1] Circular reasoning is used or the statement is said to be true, but no proof by contradiction or indirect proof is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[2] incorrect procedure.

[2] A correct indirect proof is written with appropriate statements and reasons.

[1] The assumption that \overline{AT} is perpendicular to \overline{CD} is written, but no further correct work is shown.

or [1] A method other than an indirect proof is used to show that \overline{AT} is not perpendicular to \overline{CD} .

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[3] incorrect procedure.

[4] An appropriate diagram is drawn, and a correct proof is written in statement-reason or paragraph form, such as stating that $\triangle AOB$ cannot have two right angles or that two perpendiculars cannot be drawn to \overline{PA} from point O .

[3] An appropriate diagram is drawn and an appropriate reason is written to show $\overline{OA} \perp \overline{PA}$, but one statement or one reason is incomplete or is incorrect, but an appropriate conclusion is drawn.

or [3] The diagram is not drawn, but a complete and correct proof is written.

[2] An appropriate diagram is drawn, and an appropriate reason is written to show

$\overline{OA} \perp \overline{PA}$, but one statement and one reason are incomplete or are incorrect, but an appropriate conclusion is drawn.

[1] An appropriate diagram is drawn, but the proof contains circular reasoning.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[4] incorrect procedure.

[6] Complete and correct proof (statement and reason or paragraph form).

[5] 1 statement and/or reason incorrect/incomplete, but leads to the conclusion.

[4] No or incorrect conclusion drawn to correct proof of parallel lines OR and SE .

or [4] 2 statements and/or reasons incorrect/incomplete, but leads to proper conclusion.

[3] Partial proof, missing more than two steps, with correct conclusion.

[2] Assumes bisection and only proves triangles congruent.

[1] Gives proper assumption and conclusion only.

[0] A zero response is completely incorrect, irrelevant, or incoherent; or is a correct response that was obtained by an obviously

[5] incorrect procedure.