Understand specific and general formulations that lead to analytical results

Key knowledge | Free preview

Learning target: Understand specific and general formulations that lead to analytical results.

Consider an illustrative river 120 m wide. Water flows east at 1.5 m/s, and a boat can move at 2.5 m/s relative to the water. North points directly across. Ignore acceleration and bank effects. A different navigation objective can change the best heading, so state the required landing condition.

Try the mathematics

Task 1. If the current speed is $c \geq 0$, derive the heading components and crossing time for landing directly opposite. Give the permitted values of c and evaluate $c=1.5$.

Continue with the full worksheet

The complete resource has 2 focused task sets and substantive worked solutions. Use an exercise book or print the A4 worksheet. This preview shows the first task without its full solution.

Find this resource: https://resources.aspiretopowerlearning.com.au/vce/skills/sm-u2-o2-kk-02/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Specialist Mathematics; Unit 2; Outcome 2; Key knowledge; bullet 2; p. 70.

The learning target is a concise paraphrase. Aspire reference: sm-u2-o2-kk-02. This is an internal identifier, not an official VCAA code.

Free preview: share intact with attribution, without charging. Full resource rights are not included.

Original independent practice. Not published or endorsed by VCAA. The activity is not an official SAC, examination or complete treatment of every clause of a broad curriculum requirement.