Linear and piecewise models

Learn and practise | Free preview

A sample from this topic. The complete topic collection contains three different resources and worked solutions.

Read the worked example, then show each step in the practice questions. Show the mathematical steps. A calculator, graphing tool or CAS may be used to check results where useful.

What you will practise

- Linear functions, graphs, equations and models

Useful starting skills: Year 10 algebra, percentages, statistical displays, geometry and trigonometry.

In $y=a+bx$, a is the value at $x=0$ and b is the change in y for a one-unit increase in x. Choose a realistic domain for any contextual model.

A piecewise rule uses different formulas on different intervals. At boundary points state which rule applies; a step model may have jumps.

Worked example

A hire charge is $C=18+7h$. Interpret coefficients and find C at 3 hours.

Substitute $h=3$; $18+21=39$.

Answer: \$18 fixed fee; \$7/hour; \$39.

Try it yourself

Name: _____ Date: _____

1. Find the line through(2, 7), (5, 16).

2. Rearrange 3 x+2 y=12 and give intercepts.

Answers and explanations

Check the method as well as the final answer. An alternative correct method is also valid.

1. y=3 x+1.

Slope(16-7)/(5-2)=3; intercept 7-6=1.

2. y=6-1.5 x; (0, 6), (4, 0).

Solve for y; set each coordinate to 0 for intercepts.

Curriculum reference: General Mathematics Units 1–2 — Linear functions, graphs, equations and models

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