

AP Precalculus

Parametric Equations of Lines

Parametric Equations of Lines | APPC-U04-P05

96 problems · Four activity formats

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Topic focus

Across 96 tasks this topic asks for domain, interval notation, closed interval, interval, inequality and sufficiency statement and family.

8 PDFs and a README; 125 buyer pages.

AP Precalculus

**Parametric Equations
of Lines**

Name: _____ Date: _____ Class: _____

Answer each question and record the matching bank letter. Give exact values. Give the whole requested response, including any reasoning the question asks for.

Use a normal direction of the reference line to parametrize the perpendicular line through the point. point: $[3, -2]$; reference line: $x - 2y = 7$; required relation: perpendicular.

Bank label: _____

AP Precalculus

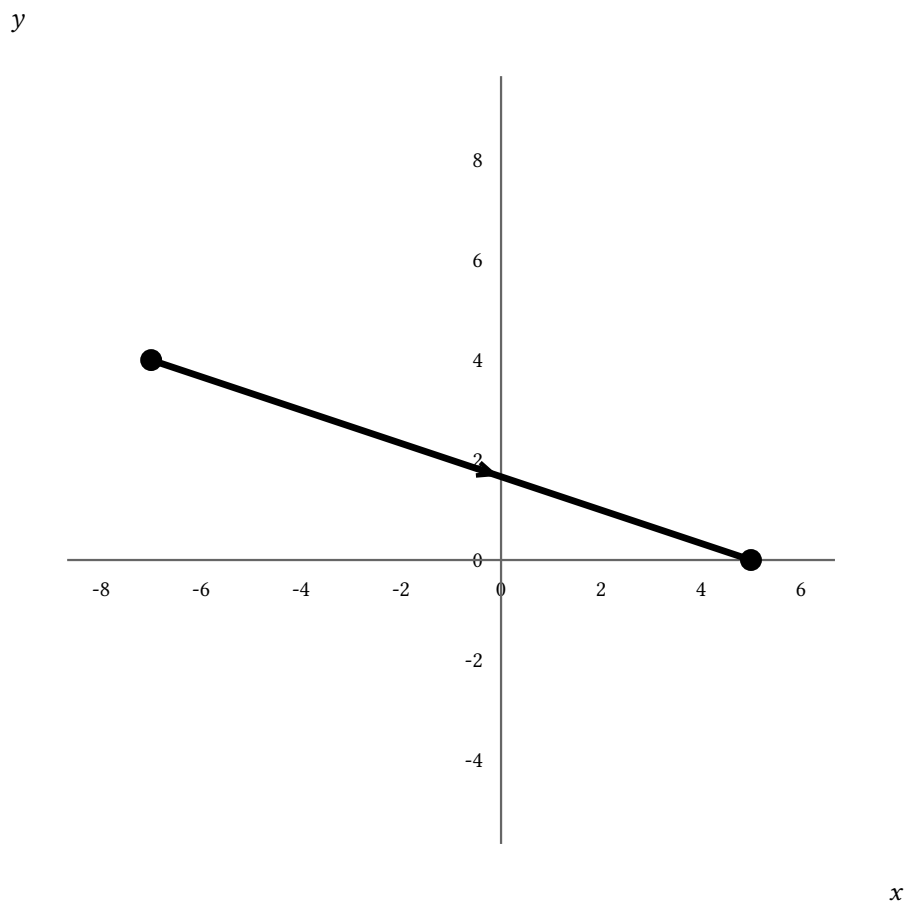
Parametric Equations of Lines

Name: _____ Date: _____ Class: _____

Begin at START. Answer the card, then find the matching final answer at the top of another card. Use the recording sheet for your reasoning. Visit each card once and continue to FINISH.

Incoming: $a = 2$ and $b = 4$

Choose the t -values that trace exactly the highlighted closed segment. endpoint membership: both included; endpoint parameters: $[-2, 2]$; map: $x = 3t - 1, y = 2 - t$; domain: to be selected.



Your response: _____

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Evaluate the supplied statement or method. Say whether it is correct, repair it if it is not, and verify the result exactly. Not every prompt contains an error.

The student interchanged point coordinates and direction components. Repair the parametrization. required direction: $[3, 1]$; required point: $[4, -2]$; student map: $x = 3 + 4t, y = 1 - 2t$.

The rates are right but the clock origin is not. Repair the student's timed segment. required: $(1, 4)$ at $t = 2$ and $(7, 1)$ at $t = 5$; student map: $x = 1 + 2t, y = 4 - t, 0 \leq t \leq 3$.

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Full Worked Solutions - excerpt

Worked example

Problem. Find a parameter-free equation for the line image. map: $x = -3 + 2t$, $y = 5 + 5t$; domain: t real.

Answer. $5x - 2y = -25$

Explanation and check.

The combination $5(-3 + 2t) - 2(5 + 5t)$ is constantly -25 .

Worked example

Problem. Give an affine parametrization of this horizontal line. equation: $y = -7$; domain: full line.

Answer. $x = t$, $y = -7$, with t real.

Explanation and check.

Let x vary freely while y remains equal to -7 .