The Panda Math Tutor

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Straight Lines

Student Worksheet

Questions & Working Space

IGCSE Mathematics

Name: _____

Date: _____

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Note

How to use this worksheet. These questions are built *strictly* on the *Straight Lines* notes: the gradient formula, the form $y = mx + c$, horizontal and vertical lines, sketching, finding the equation of a line, parallel and perpendicular gradients, the midpoint and distance formulas, the intersection of two lines, and real-world interpretations.
Working space. Ruled lines (and grids where a sketch is needed) are provided after each question — show *all* of your working there, quote the formula you are using before substituting, and simplify your final answer fully. Harder questions have a teal **Hint** box; try the question first and use the hint only if you are stuck.
Checking your answers. Full step-by-step solutions, a marking scheme for the exam paper, and a quick answer key are in the separate booklet *"Straight Lines — Solutions & Answer Key."* Try each question honestly before you look.

1 Part I — Topic-by-Topic Exercises

1.1 The Gradient of a Line

Exercise G1 *[Basic]*

Find the gradient of the line passing through $(1, 4)$ and $(5, 16)$.

Exercise G2 *[Basic]*

Find the gradient of the line through each pair of points:

(a) $(2, 9)$ and $(8, 3)$ (b) $(-3, 2)$ and $(5, 18)$

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Exercise G3 *[Standard]*

Find the gradient of the line through each pair of points, giving your answer as a fraction in its simplest form where necessary:

(a) $(-4, 7)$ and $(2, -5)$ (b) $(-6, -3)$ and $(2, 1)$

Hint

Take care with the double negatives: $2 - (-4) = 6$, not -2.

Exercise G4 *[Standard]*

Find the gradient of the line through:

(a) $(-2, 5)$ and $(6, 5)$ (b) $(3, -1)$ and $(3, 8)$

In each case describe the line in words.

Exercise G5 *[Intermediate]*

Without calculating the gradient exactly, state whether it is positive, negative, zero or undefined for the line through:

(a) $(1, 2)$ and $(4, 9)$ (b) $(-5, 3)$ and $(0, -7)$ (c) $(2, -6)$ and $(9, -6)$ (d) $(-4, 1)$ and $(-4, 10)$

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Preview ends here

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