直線方程練習 / Straight-line equations

SketchMath 原創中英練習 / Original bilingual practice · Not official HKEAA papers

先求斜率；垂直線 x = 常數的斜率並不存在。
Find the slope first; a vertical line x = constant has undefined slope.

1.

求通過 (1, 2) 和 (3, 6) 的直線方程。
Find the equation through (1, 2) and (3, 6).

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2.

求通過 (1, 1) 且垂直於 y = 2x 的直線。
Find the line through (1, 1) perpendicular to y = 2x.

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3.

求通過 (3, −1) 的垂直直線方程，並說明斜率。
Find the vertical line through (3, −1) and state its slope.

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答案及詳解 / Worked solutions

1.

1. m = (6 − 2)/(3 − 1) = 2。
   m = (6 − 2)/(3 − 1) = 2.

2. y − 2 = 2(x − 1)。
   y − 2 = 2(x − 1).

y = 2x。
y = 2x.

2.

1. 所求斜率為 −1/2。
   The required slope is −1/2.

2. y − 1 = −(x − 1)/2。
   y − 1 = −(x − 1)/2.

y = −x/2 + 3/2。
y = −x/2 + 3/2.

3.

1. 所有點的 x 坐標都是 3。
   Every point has x-coordinate 3.

2. 斜率公式的分母 Δx = 0，所以斜率不存在，不是 0。
   The slope formula has Δx = 0, so the slope is undefined, not zero.

x = 3；斜率不存在。
x = 3; undefined slope.