Transcomputation - Answers 4

Dr James A.D.W. Anderson FBCS CITP CSci

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Note

The gradient, m, from point $P_1 = (x_1, y_1)$ to $P_2 = (x_2, y_2)$ is given by:

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

1 Calculate the Gradient Between:

1.1 $m = (8-4)/(2-2) = 4/0 = \infty$.

1.2 $m = (4-8)/(2-2) = -4/0 = -\infty$.

1.3 $m = (4-4)/(8-2) = 0/6 = 0$.

1.4 $m = (4-4)/(2-8) = 0/(-6) = 0$.

1.5 $m = (4-4)/(\infty-2) = 0/\infty = 0 \div \infty = \frac{0}{1} \div \frac{1}{0} = \frac{0}{1} \times \frac{0}{1} = 0/1 = 0$.

1.6 $m = (8-4)/(\infty-2) = 4/\infty = 4 \div \infty = \frac{4}{1} \div \frac{1}{0} = \frac{4}{1} \times \frac{0}{1} = 0/1 = 0$.

1.7 $m = (\infty-4)/(\infty-2) = \infty/\infty = \infty \div \infty = \frac{1}{0} \div \frac{1}{0} = \frac{1}{0} \times \frac{0}{1} = 0/0 = \Phi$.

1.8 $m = (\Phi-4)/(2-2) = \Phi/0 = \frac{0}{0} \div \frac{0}{1} = \frac{0}{0} \times \frac{1}{0} = 0/0 = \Phi$.

2 Sketching Functions

The following will be presented in the exercise class. You might like to prepare sketches for your portfolio.

2.1 Draw the 2D, Cartesian, x- and y-axes.

2.2 Sketch all of the position vectors with a gradient of $-\infty$.

2.3 Sketch all of the position vectors with a gradient of ∞.

2.4 Sketch all of the position vectors with a gradient of Φ.

2.5 Sketch all of the position vectors with a gradient of 0.