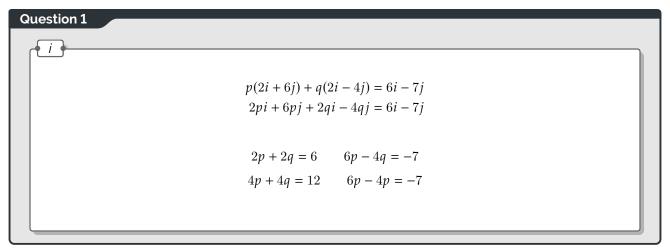
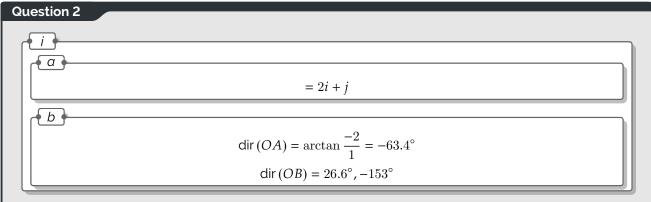
Standard Deviation Jack Maguire





• ii

 \overline{C} points form a circle around A, radius 2. You need to find the unit vector of A, then scale it by 2. Then, either add/subtract that from A to get the max/min.

$$|OA| = \sqrt{1^2 + 2^2} = \sqrt{5}$$

$$OA_{\text{Unit}} = \frac{OA}{\sqrt{5}}$$

$$= \frac{1}{\sqrt{5}}i - \frac{2}{\sqrt{5}}j$$

$$= \frac{\sqrt{5}}{5}i - \frac{2\sqrt{5}}{5}j$$

$$|AC| = \frac{2\sqrt{5}}{5}i - \frac{4\sqrt{5}}{5}j$$

$$\text{Max} = i - 2j + \frac{2\sqrt{5}}{5}i - \frac{4\sqrt{5}}{5}j$$
$$\text{Min} = i - 2j - \frac{2\sqrt{5}}{5}i + \frac{4\sqrt{5}}{5}j$$