

ASSIGNMENT 1

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Download all latex-tikz codes from

https://github.com/vishwahurakadli/EE3900/blob/main/Assignment_1/Assignment_1.tex

1 PROBLEM

(Vectors-2.20) If

$$P = 3a - 2b \quad (1.0.1)$$

$$Q = a + b \quad (1.0.2)$$

find R. which divides PQ in the ratio 2 : 1

- 1) internally
- 2) externally

2 SOLUTION

- 1) section formula for internal division for ratio m : n is given by

$$I = \frac{m * A + n * B}{m + n} \quad (2.0.1)$$

so for ratio 2 : 1 R will be given by

$$R = \frac{2 * (3a - 2b) + (a + b)}{2 + 1} \quad (2.0.2)$$

$$R = \frac{7a}{3} - b \quad (2.0.3)$$

will divide PQ internally

- 2) similarly section formula for external division for ration m : n is given by

$$E = \frac{m * A - n * B}{m - n} \quad (2.0.4)$$

so for ratio 2 : 1 R will be given by

$$R = \frac{2 * (3a - 2b) - (a + b)}{2 - 1} \quad (2.0.5)$$

$$R = 5a - 5b \quad (2.0.6)$$

will divide PQ externally