Example #2c p. 3 Ch. 9

Let **u** = <6, -3> and **v** = <−14, 8>. Find

c) 5**u** + 2**v**

First get the component of 5u & 2v

- Multiply the horizontal component of u by 5

$$5 \, u_a = 5 \cdot 6 = 30$$

- Multiply the vertical component of u by 5

$$5 \, u_b = 5 \cdot -3 = -15$$

- Multiply the horizontal component of v by 2

$$2 \, v_a = 2 \cdot -14 = -28$$

- Multiply the vertical component of v by 2

$$2 \, v_b = 2 \cdot 8 = 16$$

Next, add the components of 5u & 2v

- Add the horizontal components

$$5u_a + 2v_a = 30 + \text{-}28 = 2$$

- Add the vertical components

$$5u_b + 2v_b = \text{-}15 + 16 = 1$$

Thus, 5u + 2v is

5u + 2v = <2, 1>