

---

**Dot Product and Angles Between Vectors**

---

For each of the following find the dot product  $v \cdot w$  and the angle between  $v$  and  $w$ .

1)  $v = i - j$  and  $w = i + j$

2)  $v = i + j$  and  $w = -i + j$

3)  $v = 2i + j$  and  $w = i + 2j$

4)  $v = 2i + 2j$  and  $w = i + 2j$

5)  $v = \sqrt{3}i - j$  and  $w = i + j$

6)  $v = i + \sqrt{3}j$  and  $w = i - j$

7)  $v = 3i + 4j$  and  $w = 4i + 3j$

8)  $v = 3i - 4j$  and  $w = 4i - 3j$

9)  $v = 4i$  and  $w = j$

10)  $v = i$  and  $w = -3j$