

Math 150 Week-in-Review 10 Answer Key

1. (a) $\langle -3, 4 \rangle$
(b) 5
2. (a) $\langle 10, -18 \rangle$
(b) $\sqrt{149}$
(c) $\langle -1, 3 \rangle$
3. $\langle -\frac{3\sqrt{3}}{2}, -\frac{3}{2} \rangle$
4. 330°
5. (a) $\langle -\frac{15}{2}, \frac{-15\sqrt{3}}{2} + 3 \rangle$
(b) ≈ 12.49 mi/hr (The magnitude of the vector from part a.)
(c) S 36.9° W
6. Needed speed (relative to the wind): ≈ 338.80 mi/hr
Needed direction: 328.25° , or as a bearing: S 58.25° E
7. (a) 23
(b) -20
8. 120° ; They are NOT orthogonal.
9. $-\frac{10}{3}$
10. $\langle -\frac{3}{\sqrt{10}}, \frac{1}{\sqrt{10}} \rangle$
11. (a) $\frac{1}{\sqrt{10}}$
(b) $\frac{1}{\sqrt{29}}$
12. $\langle -\frac{77}{53}, \frac{22}{53} \rangle$
13. 33
14. $375\sqrt{3}$ ft-lb
15. (a) $(2, 5), (-2, 5), (\sqrt{5}, 4), (-\sqrt{5}, 4)$
(b) $(-1, -2)$
16. -2 and 6