Appendix J.2: Additional Problems

1. Find $|\mathbf{a}|$ if $\mathbf{a} \cdot \mathbf{b} = 50$, $|\mathbf{b}| = 20$, and $\theta = \frac{\pi}{3}$

2. Find the value of x so that vector projection of $\mathbf{b} =< x, 7 >$ onto $\mathbf{a} =< 1, 4 >$ is $< 5, 20 >$

3. Using vectors, find the distance from the point $(2, 3)$ to the line $y = 2x + 6$

4. Using vectors, find the distance between these parallel lines: $y = 2x-1$ and $y = 2x+6$

5. Find the work done by a force of 20 lb acting in the direction of N50^{o}W in moving an object 4 feet due west.

6. Find the cosine of the angle between the vectors $\langle 3, 1 \rangle$ and $\langle -2, 7 \rangle$