WORKSHEET: SUMMARY OF LAST OF CH 3

1. For two n-dimensional vectors a and b, we defined the angle, θ, between them to be

2. This is a plausible definition because

3. Fill in the blanks below assuming that a and b are n-dimensional vectors.
   (a) $\frac{a^T b}{\|a\|\|b\|} = 1$ if and only if
   (b) $\frac{a^T b}{\|a\|\|b\|} = -1$ if and only if
   (c) $a^T b > 0$ if and only if
   (d) $a^T b < 0$ if and only if
   (e) $a^T b = 0$ if and only if

4. Suppose $a = (1, 2, 3, 4)$ and $b = (2, 0, -1, 2)$ and $L(t) = (1 - t)a + tb$ where t is a real number.
   (a) Find $L(0)$ and state what *type* of object it is.
   (b) Find two other L-values.
   (c) Rewrite L in the form $L(t) = ct + d$ and explain how you know L is a line.