

## Assignment 2 – All 2 parts – Math 243

Due: Wednesday, Jan. 25, 2017, at the beginning of class

Textbook exercises:<sup>1</sup>

**Section 11.3:** 2, 4, 6, 14, 18

**Section 11.4:** 36, 38

Other exercises:

- (1) Determine if the angle between the following pairs of vectors is acute, obtuse, or right.
  - (a)  $\mathbf{u} = (1, 2, 3)$  and  $\mathbf{v} = (-3, -2, -1)$
  - (b)  $\mathbf{u} = (1, 2, 3)$  and  $\mathbf{v} = (-3, 0, -1)$
  - (c)  $\mathbf{u} = (1, 2, 3)$  and  $\mathbf{v} = (-3, 2, 1)$
- (2) A constant force of  $5N$  in the direction of the positive  $x$ -axis pushes an object that travels from the origin to the point  $(2, -1, 3)$ . What is the work done by this force?
- (3) Do exercises 2, 4, 6, 8 of Section 11.4, but rather than give the length and direction as asked, just give the answer as a vector.
- (4) Compute the determinant of the matrix

$$\begin{pmatrix} 1 & 2 & 0 \\ 1 & 0 & 1 \\ 0 & 3 & 5 \end{pmatrix}.$$

- (5) What is the volume of the parallelepiped defined by the three vectors  $(1, 2, 0)$ ,  $(1, 0, 1)$ ,  $(0, 3, 5)$ ?

---

<sup>1</sup>From Hass, Weir, and Thomas' *University calculus: alternate edition*