

## Problems in Chapter 6 and some from Chapter 7

June 17, 2009

- 6.1**
- 1-30, conversion between radians and degrees
  - 31-48, about coterminal angles (angles which represent the same point on the unit circle)
  - 49-65 Area and Arclength formulas (the generalization of the formulas for area and circumference of a circle)
- 6.2**
- 1-8 Getting values of trigonometric functions by just knowing the lengths of the sides.
  - 9-14 Getting values of sides from knowing the angles (and hence the values of the trigonometric functions at those angles)
  - 15-16 Expressing Side Lengths in terms of angles. (your answer won't be a number here, your answer will depend on the angle  $\theta$ )
  - 17-22 If you know the value of one trigonometric function (and the quadrant in which your point lies) you can get them all.
  - 23-28 Computations with trigonometric functions.
  - 29-36 If you know the value of one trigonometric function (and the quadrant in which your point lies) you can get them all. In these problems find the side lengths of the given triangle.
  - 39-44 Find the value of  $x$  in the figure using what you know about how side lengths relate to angles.
- 6.3**
- 9-32 Find the exact values of the trigonometric functions.
  - 33-36 Find the quadrant in which the point on the unit circle corresponding to a given angle  $\theta$  lies
  - 37-42 Given a trigonometric function and the quadrant in which the angle lies, express the function they ask for in terms of the given trigonometric function. For example if I tell you to express  $\sin(\theta)$  in terms of  $\cos(\theta)$  in the first quadrant, my answer would be

$$\sin(\theta) = \sqrt{1 - \cos(\theta)^2}.$$

I would also need to explain how I got there using the formula  $\sin(\theta)^2 + \cos(\theta)^2 = 1$  and why I chose the positive square root.

- 43-50 If you know the value of one trigonometric function (and the quadrant in which your point lies) you can get them all. Do this some more.

- 51-60 These use a jumble of everything so far. I think they are good practice. In particular 57 and 58 are nice.
- 6.4**
- 1-10 use the law of sines to help you solve for some sides.
- 6.5**
- 1-8 use the law of cosines to help you solve for some sides.
  - 31-36 Use the law of cosines to help you compute some weird areas.
- 7.1**
- 1-10 Expand some formulas in terms of sine and cosine.
  - 25-88 Prove a ton of identities (very important)
- 7.2**
- 1-18 Use the addition and subtraction formulas to help you compute some special values of trig functions exactly.
  - 19-44 prove some identities.
  - 41-44 write the expression in terms of sine only.