Please use lots of space and explain your answers, showing clearly any work you had to do. Each question is worth 2 points.

---

(1) State the quadratic formula:

$$\text{If} \quad ax^2 + bx + c = 0 \quad \text{then} \quad x = \frac{??? \pm ???????}{?????}.$$

(2) Use the quadratic formula to show that the solutions to $19x^2 + 9x + 1 = 0$ are:

$$x = \frac{-9 + \sqrt{5}}{38} \quad \text{and} \quad x = \frac{-9 - \sqrt{5}}{38}$$
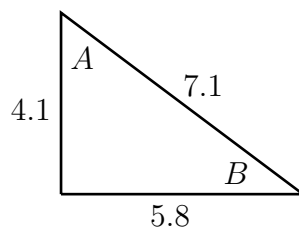
(3) Use the quadratic formula to solve: $5x^2 - 4x = -1$

(4) Use the quadratic formula to solve: $3x^2 + 2x = 0$

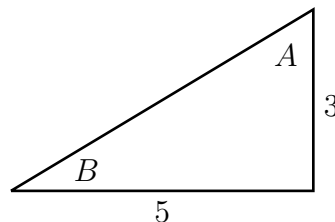(No points if you solve it by factoring!)

(5) Solve using any method: $(x - 2)(x - 6) = 4$

(6) For this right triangle, find

   (a) $\cos A$ **(b)** $\tan B$ **(c)** $\sin B$
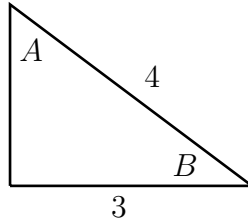
(7) In this triangle:

   (a) Find the length of the hypotenuse using the Pythagorean theorem. Give your answer as a radical, not a decimal.

(b) Evaluate and simplify: $\sin A$

(c) Evaluate and simplify: $\csc B$

(Remember that there should be no radicals in the denominator.)

(8) For this triangle, evaluate and simplify

(a) $\sin B$ **(b)** $\cot B$ **(c)** $\sec A$

(9) (a) Draw the 45-45-90 and 30-60-90 triangles with their side lengths.

(b) Find $\cos 30°$

(c) Find $\sin 45°$

(d) Find $\tan 60°$

(10) Add and simplify: $\csc 60° + \cot 60°$

If you get stuck on a question or aren't sure if you understand it:

- Go over the relevant class notes and section in the textbook.

- Check if you get the right answer for a similar odd-numbered question in the text-book (answers at the back of the book).

- Ask me about it after class.

- Come to my office hours: Mon 12:00 - 1:00, Wed 12:00 - 1:00 in CP 317.

- Go to the Math Tutorial Lab in-person in CP 303 or online.