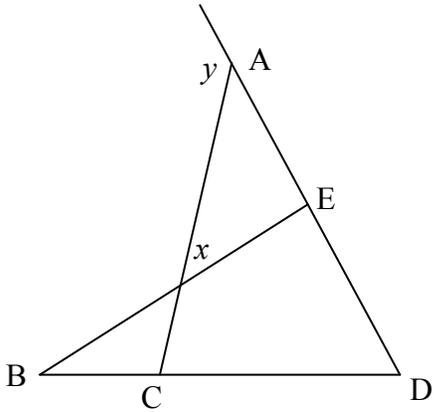


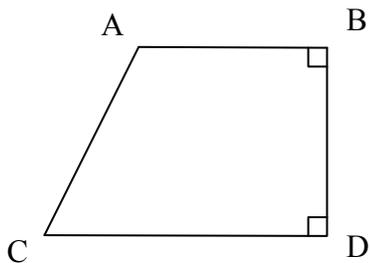
**Math 173 – Assignment #1**

**Name:** \_\_\_\_\_

1.  $\angle EBD$  is  $30^\circ$ ,  $\angle ACD$  is  $60^\circ$  and  $\angle BDA$  is  $80^\circ$ . Calculate angles  $x$  and  $y$  as shown on the diagram. Show your work (writing the values of the angles in the diagram is sufficient).



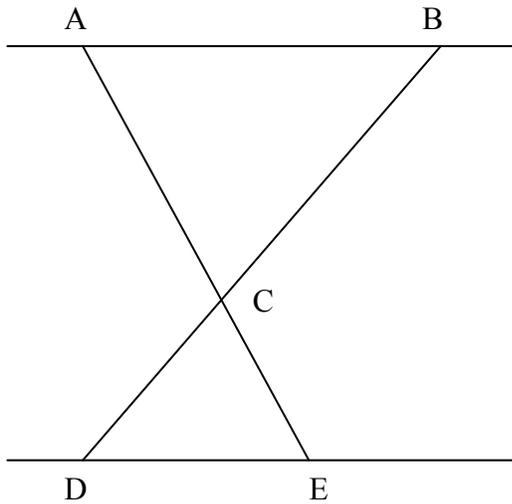
2.  $AB$  and  $BD$  are both 2 units long, while  $BC$  is  $\sqrt{13}$  units long. Find the exact length of  $AC$ . Show enough work that I can see your method.



\_\_\_\_\_

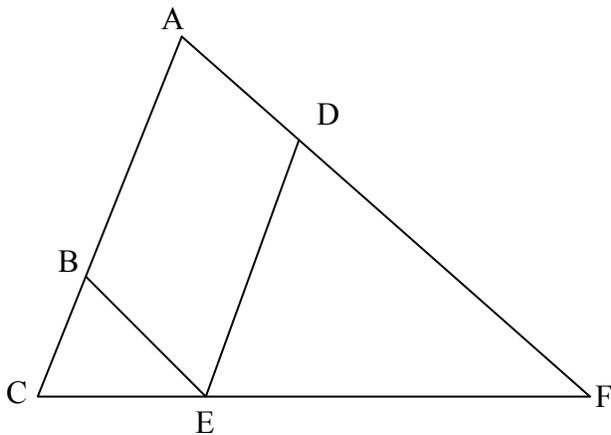
For the following two questions, show your work: label any congruent angles you are using on the diagram, state which triangles are similar and why if you are using any similarity properties, and clearly label which sides you are using when setting up a ratio.

3. Lines  $AB$  and  $DE$  are parallel.  $AB = 8$ ,  $DE = 4$ , and  $AE = 12$ . Calculate the length of  $AC$ .




---

4.  $BE$  is parallel to  $AF$ , and  $DE$  is parallel to  $AC$ .  $\triangle DEF$  has an area that is four times as big as the area of  $\triangle BCE$ . If  $EF = 6$ , find the length of  $CF$ .




---

5. Use your calculator to calculate the following. Round your answer to three decimal places.

a)  $\cos -36.5^\circ$  \_\_\_\_\_

b)  $\sec 92^\circ$  \_\_\_\_\_

c)  $\tan -325^\circ$  \_\_\_\_\_

d)  $\sin 65^\circ$  \_\_\_\_\_

6. Solve the right triangle that has  $A = 72^\circ$  and  $a = 0.36$ . Use the convention that  $c$  is the hypotenuse.

\_\_\_\_\_

7. Sketch the angle  $-750^\circ$  in standard position (include the swirly line to show the number of revolutions), and list one positive and one negative coterminal angle.

\_\_\_\_\_

8. Give the exact function value of the following. Show your work.

a)  $\tan -90^\circ$

\_\_\_\_\_

b)  $\csc 300^\circ$

\_\_\_\_\_

c)  $\sin -225^\circ$

\_\_\_\_\_

9. Given that  $\cot \theta = -\frac{1}{5}$  and that  $\sin \theta$  is negative, find the other five trig functions of  $\theta$ . Give exact answers.

10. Use the cofunction and reciprocal identities to fill in the blanks.

$$\cos 25^\circ = \frac{1}{\underline{\hspace{1cm}}} 25^\circ = \underline{\hspace{1cm}} 65^\circ = \frac{1}{\underline{\hspace{1cm}}} 65^\circ$$

11. If  $\sin \theta = -0.35$  and  $\theta$  is in Q III, find  $\theta$ .

---

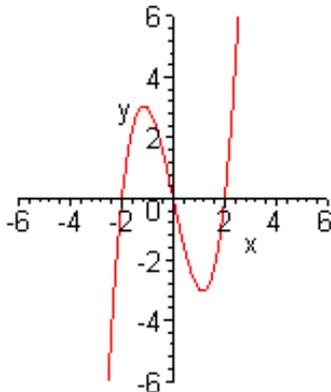
12. Find the domain of the following function. Also, calculate  $f(4)$ .

$$f(x) = \frac{\sqrt{x}}{x-1}$$

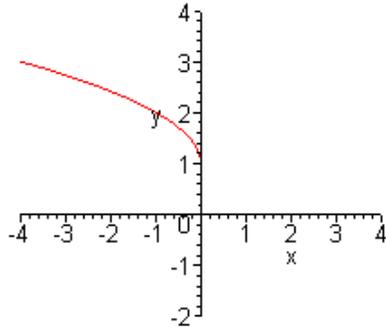
---

---

13. Consider the function graphed below. Label any maxima and/or minima, stating whether they are relative or absolute. Also, indicate on the graph any intervals where the function is increasing.



14. Consider the graph below. State whether  $y$  is a function of  $x$  for this graph, and give the domain and range. (Just in case it's not clear, the graph starts at  $(0,1)$  and then moves up and off to the left.)



15. Winnie the Pooh is flying a helium balloon whose string is 10 metres long. Because of a breeze, the line makes an angle of  $75^\circ$  with respect to the level ground. Dangling 3 metres directly below the balloon is Piglet. How far away from Winnie is Piglet? (5 points)

