

Refer to the diagram above when answering the questions on this page.

1. [3] (Wheater §3.2) For each of the pair of lines, determine if they are parallel, perpendicular, or neither. You do not need to justify your answers.
 - \overline{CE} and \overline{AG}
 - \overline{HF} and \overline{AG}
 - \overline{BE} and \overline{HF}

2. [6] (Wheater §2.7) Find the measure of the following angles. You do not need to justify your answers.
 - $\angle HCB$

 - $\angle HBC$

 - $\angle BEC$

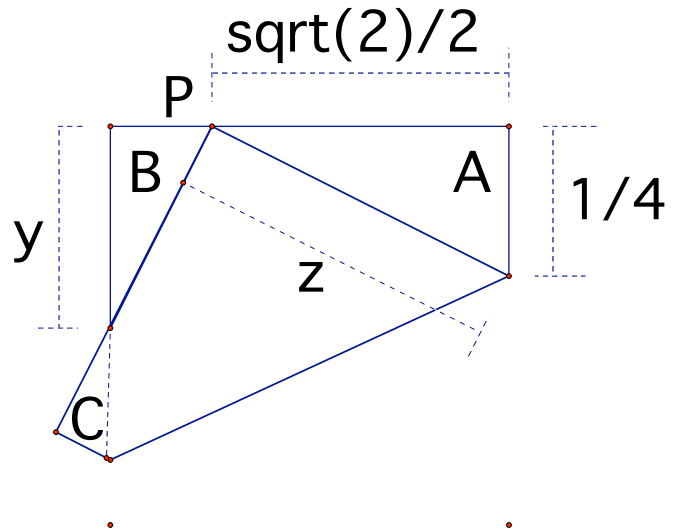
3. [2] (Wheater §1.3 #5) Write the converse of the following sentence: “If you run a marathon, then you will be tired.”

4. [4] (Wheater §7.4 #16) If $\triangle PQR \sim \triangle TOE$, $PQ = 3x + 1$, $PR = 5$, $TE = 30$, and $TO = 21x$, find TO .

5. (Wks 4) This question is based off of worksheet 4 where we let the side of a patty paper be length 1. The lower left corner of the patty paper was folded up to the top of the patty paper as shown below. Note that the diagram is *not* to scale. Use this diagram to answer the following questions.

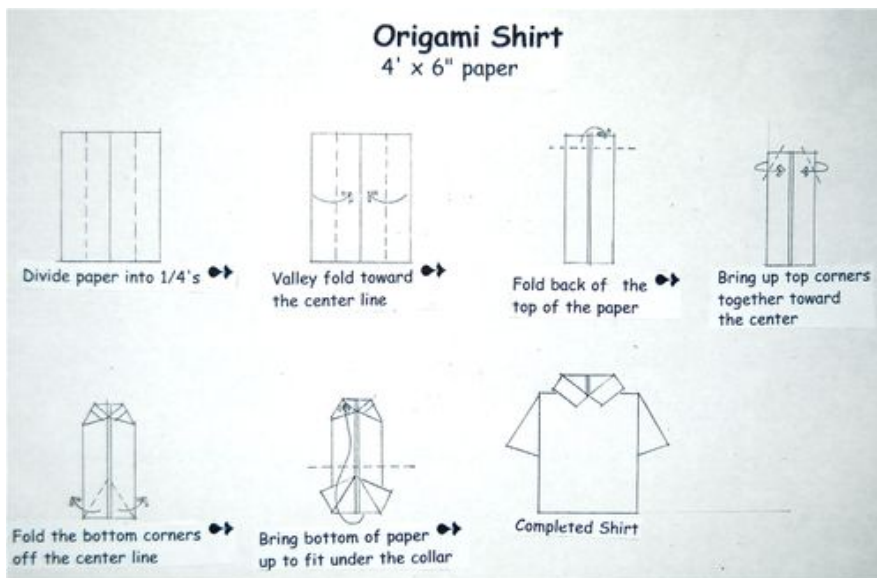
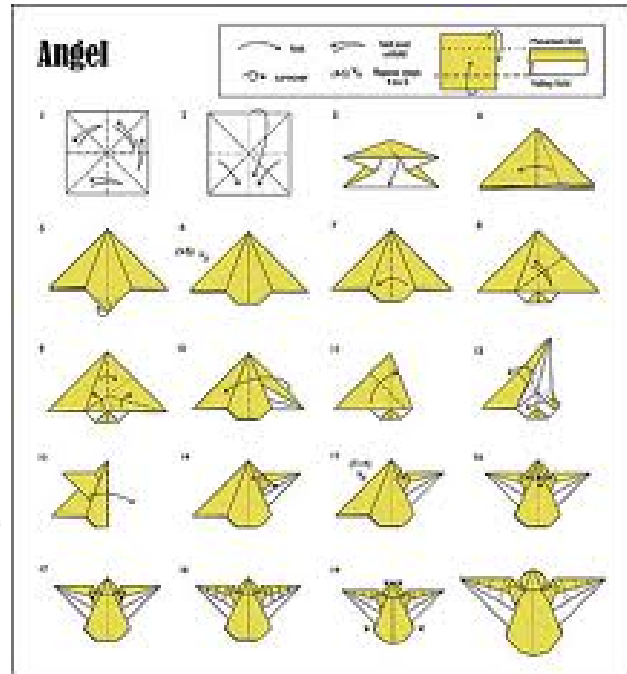
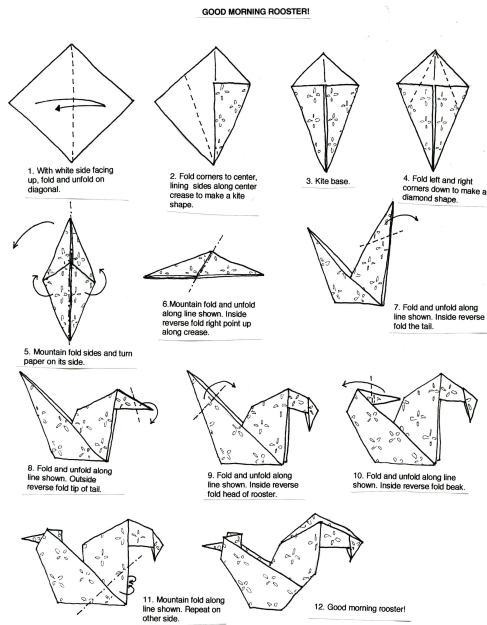
(If you would like, you can use the approximation $\frac{\sqrt{2}}{2} \approx .707$.)

(a) [2] Find the length of z .



(b) [4] Find the length of y

6. [3 each] (Lecture 1/26) Identify the base each of the origami directions below make use of.



7. [2] (Quiz 1 #3) What does the word “origami” translate to in English?

8. [2] (Lecture 1/3) How was origami used/taught initially (ie before it spread to the Arabic & Spanish world).

9. [2] (Lecture 1/24) What physical tools did the cult of pythagorus use in their geometric investigations? (For example, when you do patty paper investigations, your tools are: patty paper and pencil.)

10. [4] (Quiz 2 #6) Write down the three rules of logic as written by Aristotle in 384 BC (and discussed in class on 1/5).

11. [10] Given a triangle ABC on a patty paper, find a triangle inside $\triangle ABC$ that is half the area of $\triangle ABC$. Explain your process and *justify* why your method works. Make sure that your method works with all kinds of triangles and not just on special ones.

Hint: the area of a triangle is $\frac{1}{2} \cdot \text{base} \cdot \text{height}$.

This is a patty paper exercise so the only tools you may use are patty paper(s) and a pencil.

