

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

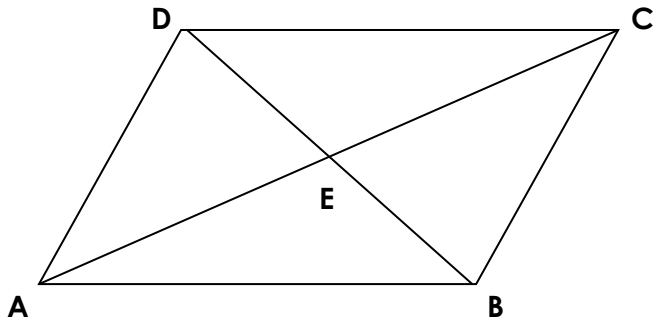
Points: \_\_\_\_\_

1. In the figure  $AD \parallel BC$  and  $AB \parallel DC$ .

a) Prove that the diagonals of parallelogram  $ABCD$  bisect each other (that is,  $AE=CE$  and  $BE=DE$ ).

(Hint: show that  $\triangle ABE \cong \triangle CDE$ )

b) Let  $BE = 2x + 1$ ,  $DE = 2y - 3$ ,  $AE = x + 4$ , and  $CE = 2x + y$ . Find  $x$ ,  $y$ ,  $AE$ ,  $CE$ ,  $BE$  and  $DE$ .



2. In parallelogram  $ABCD$ ,  $\angle A = x - 10^\circ$ ,  $\angle B = 4x - 10^\circ$ ,  $\angle C = y + 5^\circ$ , and  $\angle D = 10y - 100^\circ$ .

Find  $x$ ,  $y$  and the four angles.

