Name: ____

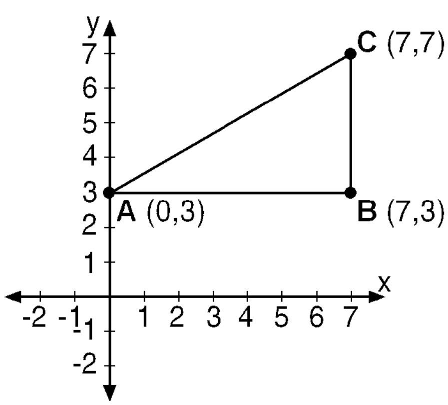
CC Geometry Honors HW

Area and Perimeter in the Coordinate Plane

1) The coordinates of vertices A and B of ΔABC are $A(3,4)$ and $B(3,12)$. If the area of ΔABC is 24 square units, what could be the coordinates of point C?

A) (3,6) C) (-3,8)
B) (6,3) D) (8,-3)

2) In the accompanying figure, ΔABC has coordinates $A(0,3)$, $B(7,3)$, and $C(7,7)$.



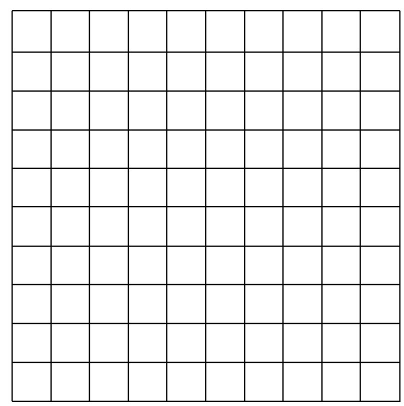
What is the area of ΔABC in square units?

A) 20 C) 16
B) 14 D) 12

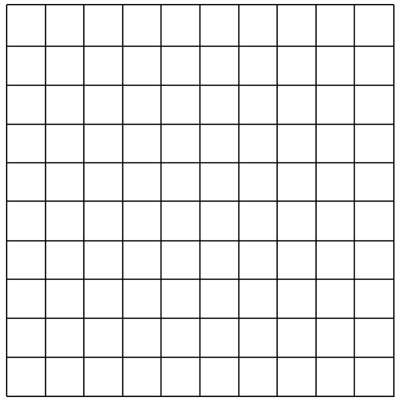
3) The endpoints of one side of a regular pentagon are (-1,4) and (2,3). What is the perimeter of the pentagon?

A) $5\sqrt{10}$ C) $\sqrt{10}$
B) $5\sqrt{2}$ D) $25\sqrt{2}$

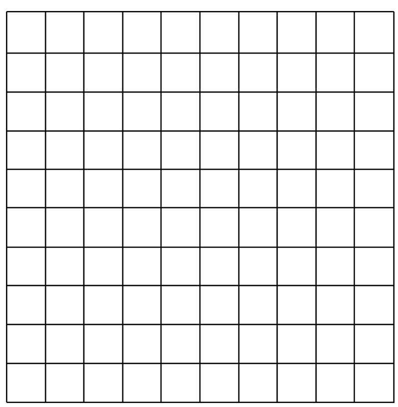
4) Using the coordinate grid below, find the area of a triangle whose vertices are $A(3,4)$, $B(1,-3)$, and $C(-3,-1)$. [*Show all work.*]



5) Using the coordinate grid below, find the area of quadrilateral *ABCD* with vertices *A*(-4,2), *B*(0,5), *C*(3,3), and *D*(1,-5). [*Show all work*.]



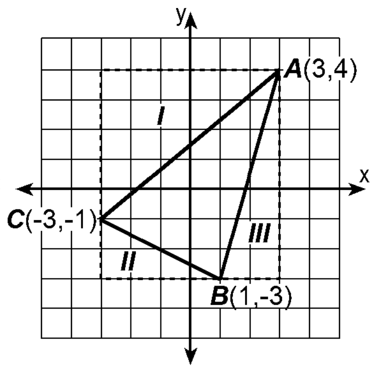
6) Using the coordinate grid below, find the area of pentagon *ABCDE* whose vertices are *A*(-3,-1), *B*(-2,2), *C*(2,2), *D*(1,-1), and *E*(-1,-2). [*Show all work*.]



1) C 2) B 3) A

4) 16 units^2

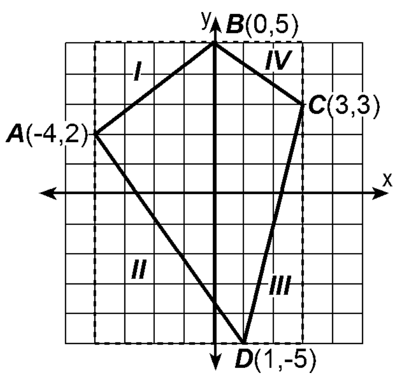
WORK SHOWN:



$A_{\text{rectangle}} = \ell \times w = (7)(6) = 42$, $A_{\text{triangle}} = \frac{1}{2}bh$: $A_I = \frac{1}{2}(6)(5) = 15$; $A_{II} = \frac{1}{2}(4)(2) = 4$; $A_{III} = \frac{1}{2}(7)(2) = 7$; $A_{\triangle ABC} =$
$A_{\text{rectangle}} - (A_I + A_{II} + A_{III}) = 42 - (15 + 4 + 7) = 16$

5) 35.5 units^2

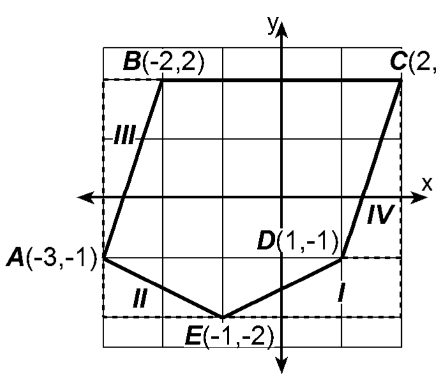
WORK SHOWN:



$A_{\text{rectangle}} = \ell w = (10)(7) = 70$; $A_{\text{triangle}} = \frac{1}{2}bh$, $A_I = \frac{1}{2}(4)(3) = 6$, $A_{II} = \frac{1}{2}(5)(7) = \frac{35}{2}$, $A_{III} = \frac{1}{2}(2)(8) = 8$, $A_{IV} = \frac{1}{2}(3)(2) = 3$;
$A_{ABCD} = A_{\text{rectangle}} - (A_I + A_{II} + A_{III} + A_{IV}) = 70 - (6 + \frac{35}{2} + 8 + 3) = 35.5$

6) 14 units^2

WORK SHOWN:



$A_{\text{rectangle}} = \ell w = (4)(5) = 20$; $A_I = \frac{1}{2}h(b_1 + b_2) = \frac{1}{2}(1)(1 + 3) = 2$; $A_{\text{triangle}} = \frac{1}{2}bh$, $A_{II} = \frac{1}{2}(2)(1) = 1$, $A_{III} = \frac{1}{2}(1)(3) = \frac{3}{2}$, $A_{IV} = \frac{1}{2}(1)(3) = \frac{3}{2}$;
$A_{ABCDE} = A_{\text{rectangle}} - (A_I + A_{II} + A_{III} + A_{IV}) = 20 - (2 + 1 + \frac{3}{2} + \frac{3}{2}) = 14$