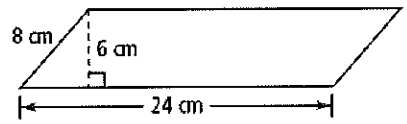
Name Key Date

10-1 Practice

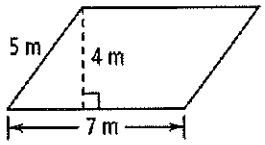
Areas of Parallelograms and Triangles

Find the AREA and PERIMETER of each parallelogram.

1. 

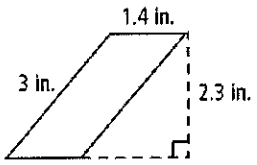
$A = 24 \cdot 6 = 144 cm^2$

$P = 24+24+8+8 = 64 cm$

2. 

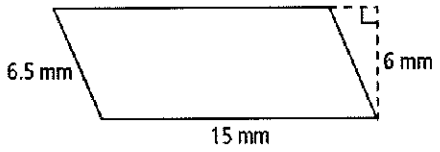
$A = 7 \cdot 4 = 28 m^2$

$P = 7+7+5+5 = 24 m$

3. 

$A = 1.4 \cdot 2.3 = 3.22 in^2$

$P = 3+3+1.4+1.4 = 8.8 in$

4. 

$A = 15 \cdot 6 = 90 mm^2$

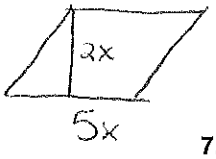
$P = 15+15+6.5+6.5 = 43 mm$

5. The area of a triangle is 36 m^2 and the height is 9 m. Find the length of the corresponding base.

$36 = \frac{1}{2}(b \cdot 9)$

$\frac{72}{9} = \frac{9b}{9}$ $b = 8 m$

6. **Algebra** In a parallelogram, a base and a corresponding height are in the ratio 5 : 2. The area is 250 cm^2. Find the lengths of the base and the corresponding height. (*Hint:* Use $5x$ for the base and $2x$ for the height of the parallelogram.)



$250 = 5x \cdot 2x$

$250 = 10x^2$

$\sqrt{25} = \sqrt{x^2}$ $x = 5 cm$

base $= 5 \cdot 5 = 25$ cm

height $= 2 \cdot 5 = 10$ cm

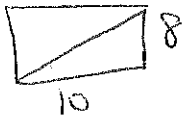
7. A triangle has area 16 m^2. List all the possible positive integers that could represent the lengths of its base and height.

$16 = \frac{1}{2}(bh)$

$32 = bh$

1, 32 / 2, 16 / 4, 8

8. A classmate drew a rectangle with a height of 8 units and a base of 10 units. What is the area of each figure formed when the rectangle is divided along one of its diagonals?

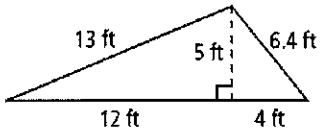


$A = \frac{1}{2}(10 \cdot 8)$

$= 40 un^2$

Find the AREA and PERIMETER of each triangle.

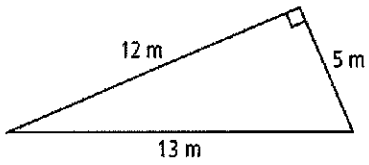
9.



$A = \frac{1}{2}(16 \cdot 5) = 40 ft^2$

$P = 12 + 4 + 6.4 + 13 = 35.4 ft$

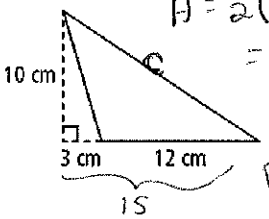
10.



$A = \frac{1}{2}(12 \cdot 5) = 30 m^2$

$P = 13 + 12 + 5 = 30 m$

11.



$A = \frac{1}{2}(12 \cdot 10) = 60 cm^2$

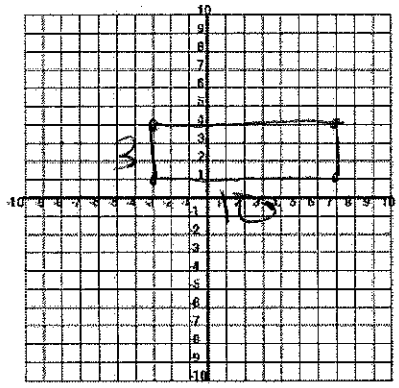
$15^2 + 10^2 = c^2$

$18 \approx c$

$P = 12 + 10 + 18 = 40 cm$

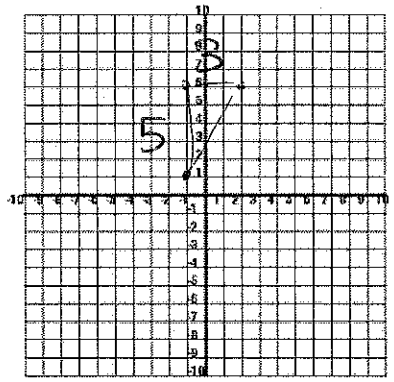
Coordinate Geometry Find the area of a polygon with the given vertices.

18. $A(-3, 1), B(-3, 4), C(7, 1), D(7, 4)$



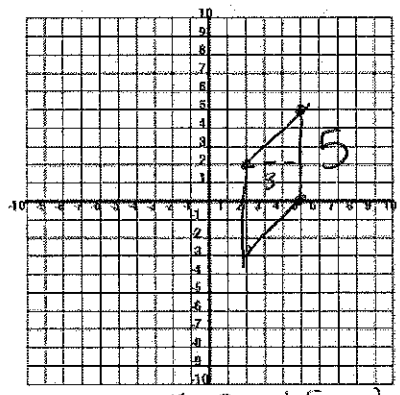
$A = 10 \cdot 3 = 30 u^2$

19. $A(-1, 1), B(-1, 6), C(2, 6)$



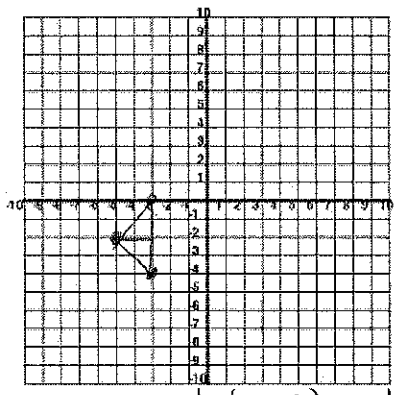
$A = \frac{1}{2}(3 \cdot 5) = 7.5 u^2$

20. $A(2, 2), B(5, 5), C(5, 0), D(2, -3)$



$A = 5 \cdot 3 = 15 u^2$

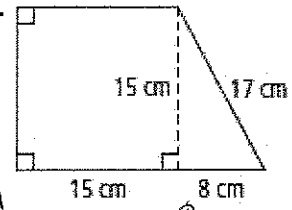
21. $A(-5, -2), B(-3, 0), C(-3, -4)$



$A = \frac{1}{2}(4 \cdot 2) = 4 u^2$

Find the area of each figure.

22.

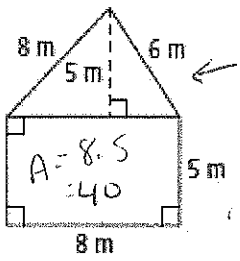


$A = 15 \cdot 15 = 225$

$A = \frac{1}{2}(8 \cdot 15) = 60$

$A = 285 cm^2$

23.

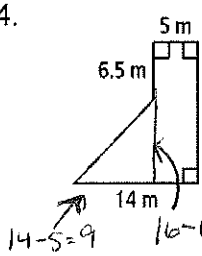


$A = \frac{1}{2}(8 \cdot 5) = 20$

$A = 8 \cdot 5 = 40$

$A = 60 m^2$

24.



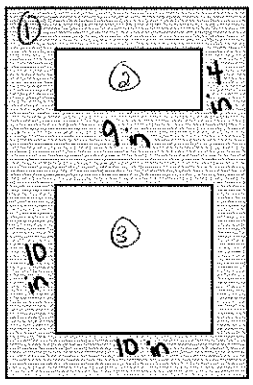
$A = 5 \cdot 16 = 80$

$14 - 5 = 9$ $\quad 16 - 6.5 = 9.5$

$A = \frac{1}{2}(9 \cdot 9.5)$

$A = 42.75$

25. Find the shaded area



$A_1 = 50 \cdot 25 = 1250$

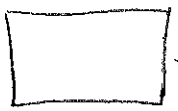
$A_2 = 9 \cdot 4 = 36$

$A_3 = 100$

$A_1 - A_2 - A_3 = 1114 in^2$

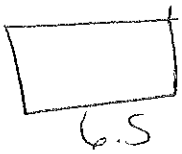
26. Find the area of a rectangle that has a base of 48 inches and a height of 3.5 feet. Write your answer in square inches.

$3.5 ft \left(\frac{12 in}{1 ft}\right) = 42 in$



$A = 48 \cdot 42 = 2016 ft^2$

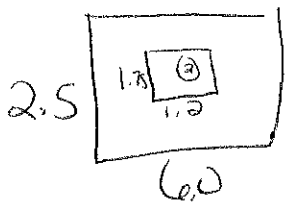
27. A rectangular room is 4.8 meters wide and 6.5 meters long. What would it cost to carpet this room if carpeting costs $17 per square meter?



$A = 4.8 \cdot 6.5 = 31.2$

$C = 31.2 \cdot 17 = \$530.40$

28. A rectangular wall is 6.0 meters long and 2.5 meters high. It has a rectangular window that is 1.2 meters wide and 1.75 meters high. How many liters of paint are needed to pain the wall if one liter covers 10 square meters?



$A_1 = 2.5 \cdot 6.0 = 15\ m^2$

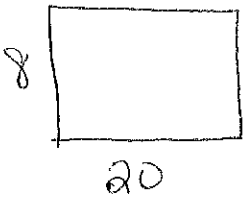
$A_2 = 1.2 \cdot 1.75 = 2.1\ m^2$

$A = 15 - 2.1 = 12.9\ m^2$

$12.9\ m^2 \left(\frac{1\ L}{10\ m^2}\right) = 1.29\ L$

29. A six foot section of fence cost $23.00. I want to build a garden that measures 20 feet long by 8 feet wide. How much will I spent on fencing?

$P = 20 + 8 + 20 + 8 = 56\ ft$



$56\ ft \left(\frac{1\ section}{6\ ft}\right) = 9.\overline{3}\ sections \left(\frac{\$23}{1\ section}\right)$

$= \$214.67$