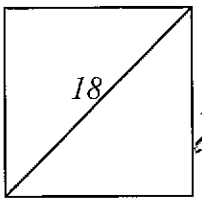
Honors Geometry
Practice 11-1 to 11-2

Name Key

Find the areas of the following.

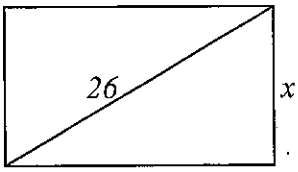
1. 

square

$\frac{18}{\sqrt{2}} = \frac{x\sqrt{2}}{\sqrt{2}}$ $x = 9\sqrt{2}$

$18\sqrt{2} = x\sqrt{2}$

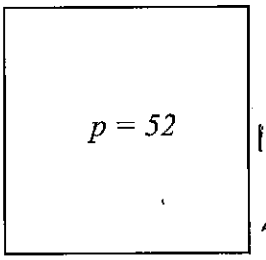
$A = (9\sqrt{2})^2$
$= 162 u^2$

2. 

rectangle

$A = 10(24)$
$= 240 u^2$

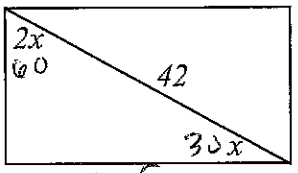
$x^2 + (2x+4)^2 = 26^2$
$x^2 + 4x^2 + 16x + 16 = 676$
$5x^2 + 16x - 660 = 0$
$(5x+66)(x-10) = 0$
$x = 10$

3. 

square

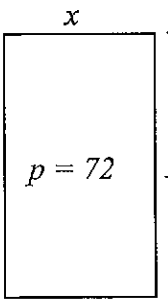
$\frac{52}{4} = 13$

$A = 13^2$
$A = 169 u^2$

4. 

rectangle

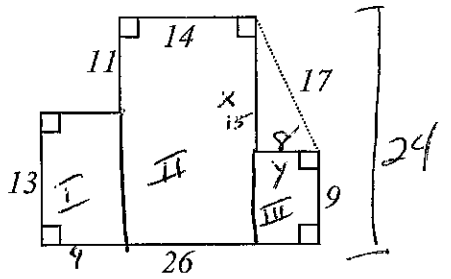
$A = 21(21\sqrt{3})$
$= 441\sqrt{3} u^2$

5. 

rectangle

$72 = 2x + 2\left(\frac{5x}{4}\right)$
$36 = x + \frac{5x}{4}$
$144 = 4x + 5x$
$144 = 9x$
$16 = x$

$A = 16(20)$
$= 320 u^2$

6. 

$A_I = 13(4)$
$= 52$

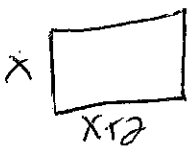
$A_{III} = (9)(8)$
$= 72$

$A_{II} = 14(24)$
$= 336$

Total $= 460 u^2$

Solve the following word problems.

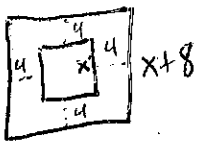
7. A rectangle has base and height which are consecutive even integers. If the area is 20 more than the square of the shorter side, what is the area of the rectangle?



$x(x+2) = 20 + x^2$
$x^2 + 2x = 20 + x^2$
$2x = 20$
$x = 10$

$A = 10(12)$
$= 120 in^2$

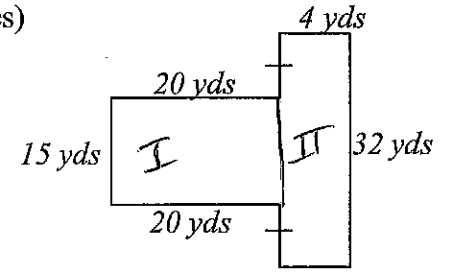
8. A square pool has a walkway around it which is 4 feet wide. If the area of the walkway is 384 square feet, find the area of the pool.



$(x+8)^2 - x^2 = 384$
$x^2 + 16x + 64 - x^2 = 384$
$16x = 320$
$x = 20$

$A_{pool} = 20^2$
$= 400 ft^2$

9. How much will it cost to pave the driveway shown if the total costs (including blacktop) are \$12 per square yard? (all angles are right angles)



$A_I = 15(20)$
$= 300\ yds^2$

$A_{II} = 4(32)$
$= 128\ yd^2$

$Total A = 428\ yds^2$
$\$12(428) = \$5136$

10. The perimeter of a room is 46 units, and its length is 3 more than its width, find its area.

$2w + 2(w+3) = 46$
$2w + 2w + 6 = 46$
$4w = 40$
$w = 10$

$A = 10(13)$
$= 130\ u^2$

Answer #'s 11-13 with Always, Sometimes, or Never

11. A scalene triangle has three altitudes of equal length. Never

12. Area of an equilateral triangle is $\frac{s^2\sqrt{3}}{4}$ Always

$A = \frac{1}{2}\left(\frac{s\sqrt{3}}{2}\right)(s)\left(\frac{s}{2}\right)$

$a = \frac{s}{2} = a\sqrt{3}$

$\frac{s\sqrt{3}}{2 \cdot 3} = a$

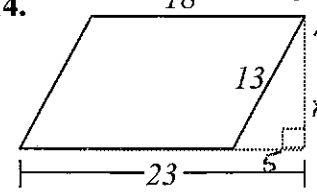
$\frac{s\sqrt{3}}{6} = a$

13. Figures that have equal areas are congruent.

Sometimes

For #'s 14-17, find the areas of the given figures.

14.

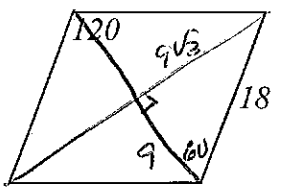


parallelogram

$5^2 + x^2 = 13^2$
$25 + x^2 = 169$
$x^2 = 144$
$x = 12$

$A = (12)(18)$
$= 216u^2$

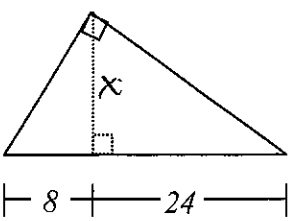
15.



rhombus

$A = \frac{1}{2}(18)(18\sqrt{3})$
$= 162\sqrt{3}\ u^2$

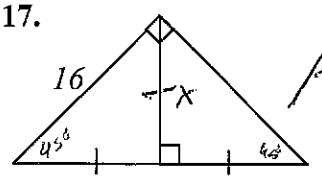
16.



$\frac{8}{x} = \frac{x}{24}$
$x^2 = 192$
$x = 8\sqrt{3}$

$A = \frac{1}{2}(32)(8\sqrt{3})$
$= 128\sqrt{3}u^2$

17.



$A = \frac{1}{2}(16)(16)$
$= 128u^2$