Dieckmann - Geometry
Unit 11 Test Review (Chapter 11)

Name Key
Hour _____

NO CALCULATOR PORTION

1. In a trapezoid, the long base is 4x and the shorter base is x. The height is 10 cm. What is the area?

$\frac{(4x+x)10}{2}$ $\frac{5x \cdot 10}{2} = 25x\ cm^2$

2. A kite has an area of $4x^2$ and the length of one diagonal is 2x. What is the length of the second diagonal?

$4x^2 = \frac{2x d_2}{2}$ $4x^2 = x d_2$ $d_2 = 4x$

3. Find the perimeter of a parallelogram in which the $A = 4x$, if one of the sides is 4.

$\frac{4x}{4} = \frac{4b}{4}$ $b = x$ $8+2x$

4. Find the area and perimeter of a square where each side is (x – 3) in.

$A = (x-3)(x-3)$ x^2-6x+9 in^2 $P = 4x-12$ in

5. Find the height of a trapezoid in which A = 140 cm^2, b_1 = 8cm, b_2 = 20cm.

$140 = \frac{(8+20)h}{2}$ $140 = 14h$ $h = 10cm$

6. Find the area of a circle whose $C = 20x\pi$.

$\frac{20x\pi}{2\pi} = \frac{2\pi r}{2\pi}$ $10x = r$ $100x^2\pi$

$A = (10x)^2\pi$

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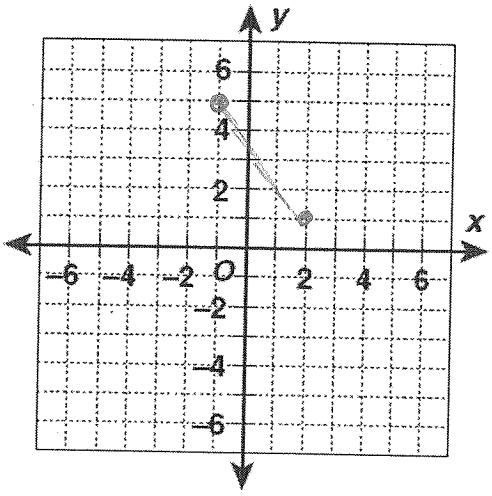
7. Find the area of a circle whose center is at (2, 1) and goes through the point (-1, 5).



$r = \sqrt{3^2+4^2} = \sqrt{9+16} = \sqrt{25} = 5$

$A = r^2\pi$

$= 5^2\pi = \boxed{25\pi}$

8. Find the diameter of a circle in which the area is $36\pi\ in^2$.

$\frac{36\pi}{\pi} = \frac{\pi r^2}{\pi}$

$36 = r^2$

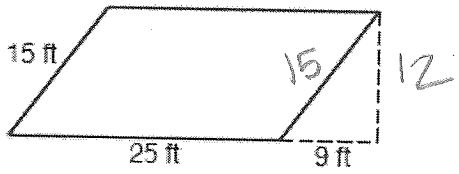
$r = 6$

$\boxed{d = 12\ in}$

CALCULATOR PORTION

Round all answers to the nearest tenth unless otherwise noted. *Show all your work!*

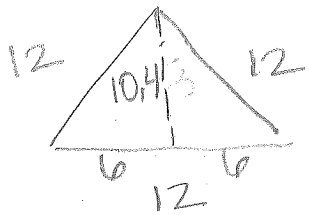
9. Find the area of the parallelogram.



$15^2 - 9^2 = 225 - 81 = \sqrt{144} = 12$

$25(12) = \boxed{300\ ft^2}$

10. The side lengths of an equilateral triangle are 12cm. Find the area of the triangle.



$12^2 - 6^2 = \sqrt{108} = 10.4$

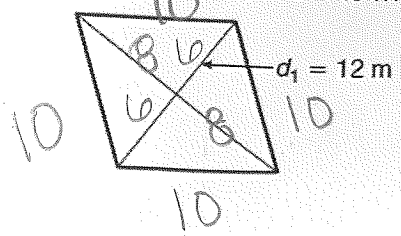
$\frac{12(10.4)}{2} = \boxed{62.4\ cm^2}$

11. A square's diagonal measures $4\sqrt{2}$ mm. Find its area.

$4 \quad \boxed{\cdot 4\sqrt{2}} \quad 4$

$4.4 = \boxed{11\ mm^2}$

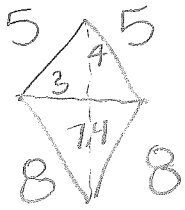
12. Find the area of the rhombus below if the side lengths are each 10 m.



$10^2 - 6^2 = 100 - 36 = \sqrt{64} = 8$

$\frac{16 \cdot 12}{2} = 96 m^2$

13. Find the area of a kite where two side lengths are 5 inches, the other two side lengths are 8 inches, and ½ of the horizontal diagonals is 3.



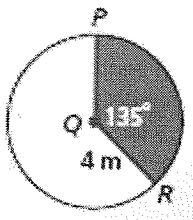
$5^2 - 3^2 = \sqrt{16} = 4$

$8^2 - 3^2 = \sqrt{55} = 7.4$

$\frac{11.4(6)}{2}$

$34.2 in^2$

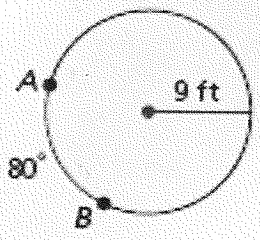
14. Find the sector area. Round your answer to the nearest tenth.



$\pi(4)^2(135/360)$

$= 18.8 m^2$

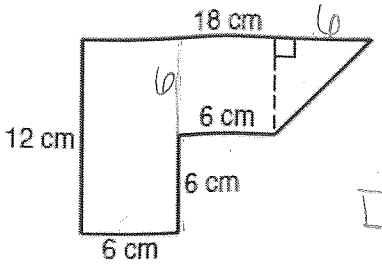
15. Find $\widehat{AB}$



$2\pi(9)(80/360)$

$= 12.6 ft$

16. Find the area.



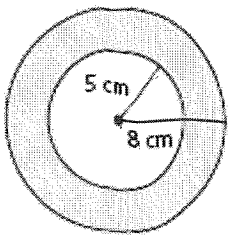
△ $\frac{6(6)}{2} = 18$

□ $= 6 \times 6 = 36$

▭ $= 12 \times 6 = 72$

$= 126\ cm^2$

17. Find the area. of shaded.



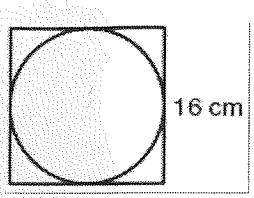
$\pi(5)^2 = 25\pi$

$\pi(8)^2 = 64\pi$

$64\pi - 25\pi =$

$39\pi\ cm^2$ or 122.5

18. Given that the circle is inside the square, find the area of the region not covered by the circle.



$16 \cdot 16 = 256 - 201.1 = 54.9\ cm^2$

$\pi(8)^2 = 201.1$

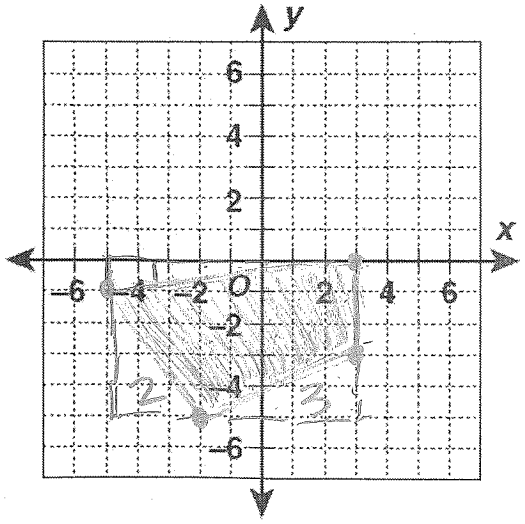
19. Graph the polygon with vertices $A(-5, -2)$, $B(-2, -5)$, $C(3, -3)$, and $D(3, 0)$. Then find the perimeter and area.

rectangle: $8(5) = 40$

$\triangle 1 = \frac{8(1)}{2} = 4$

$\triangle 2 = \frac{4(3)}{2} = 6$

$\triangle 3 = \frac{5(2)}{2} = 5$



* counting squares works, too!

$40 - 4 - 6 - 5 = 25$