LIBERAL ARTS I GEOMETRY FORM C _____ NAME _____

Show all work as necessary on this test or separate paper.
Answers may be left in terms of π.

In 1-3, convert:

1. 250 cm = _____ m.   2. 250 kg = _____ g.   3. 50 ℓ = _____ mℓ.

4. A rectangular field is 70' long and 40' wide. If fencing costs $2 per yard, how much will it cost to enclose the field?

5. If the radius of a circle is 10', find the circumference and area.

6. The circumference of a circle is $8\pi''$. Find the radius and the area.

7. Find the two angles:

$5x+12$ $2x$

8. $\overline{AC}$ is parallel to $\overline{DF}$.

Find $\angle HBC$.

9.

$\angle ABC = 61°$
$\angle CED = 50°$
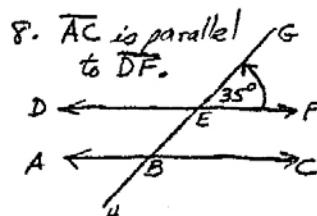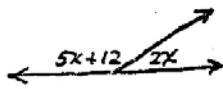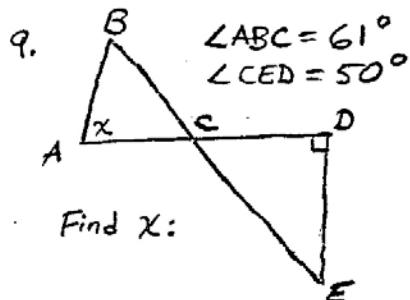
Find x:

10. A geometric figure has 6 sides. How many degrees are in the sum of the angles?

11. Find x:

80°
160°
x
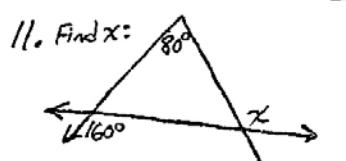
12. A quadrilateral has angles 64°, 121°, and 157°. Find the fourth angle.

omIT
⑬ Find x:

150°
70°
x

BE SURE TO GIVE UNITS WHERE NECESSARY!

14.

x 12

5

Find X.

15.

x $\sqrt{170}$ 11
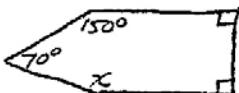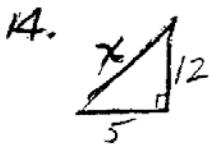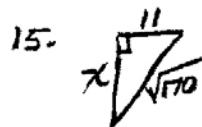
Find X

16. A 26' ladder is placed against a wall with its foot 24' away from the wall. How high on the wall does the ladder reach?

17. Find X

6

9   3 x
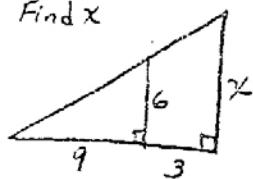
18. Find X in the similar triangles:

x

12'

.15'

18'
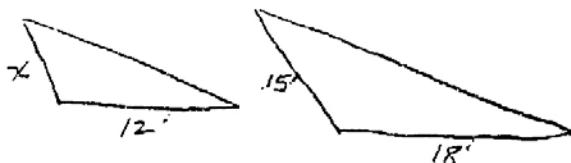
19. A flagpole casts a 56' shadow at the same time a 3' post casts an 8' shadow. How tall is the flagpole?

20. Find shaded area:

20'   10

20'

60'
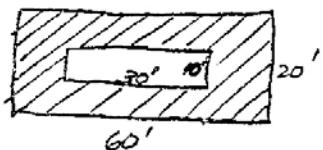
21. A pizza with 4" radius sells for $1.50. How much should a pizza with 12" radius cost?

22. A room is 10'×18' (rectangular). If carpet costs $15 per square yard, what is the total cost?

23. Find area (in terms of π)

5'

3'   3'

4'
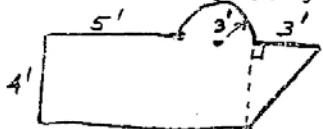
24. Find the volume of a cylinder whose base is of radius 5m. and whose height is 6m.

Be sure to give units where necessary!

25. Find the volume of a spherical ball that is 10 ft across. $\left(V = \frac{4}{3}\pi r^3\right)$

26. A spherical tank of r=2 can be filled for $6.00. How much would it cost to fill a tank of r = 10?

27. Find the area:

13 cm.
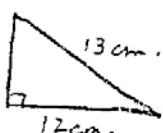
12 cm.

1. What is the area of a circular region whose diameter is 12 cm.?
   A. 144π cm^2 B. 36π cm^2 C. 24π cm^2 D. 12π cm^2

2. What is the area in square feet of a triangle whose base is 18 feet and whose height is 20 inches?
   A. 360 ft^2 B. 180 ft^2 C. 30 ft^2 D. 15 ft^2

3. What is the volume in centiliters of a 5.25-liter bottle?
   A. 5250 cl   B. 525 cl   C. 52.5 cl   D. 0.525 cl

4. The amount of wall surface that can be covered by the contents of a can of paint is given by which measure?
   A. gallons   B. liters   C. feet   D. square feet

5. Calculate the sum of the measures of the interior angles of an eight-sided convex polygon.
   A. 1440°   B. 1260°   C. 1080°   D. 1000°

6. A patio is to be built of concrete. The base of the patio is to be a slab of concrete 15 feet long by 12 feet wide by 6 inches thick. If one cubic yard of concrete costs $39, how much will the concrete for the patio cost?
   A. $3510   B. $1560   C. $130   D. $65

7. A fence that costs $6.50 per yard is to be placed around a rectangular yard that is 90 feet by 120 feet. What is the total cost of the fence?
   A. $7800   B. $2730   C. $1365   D. $910

8. What will be the cost of carpeting an office that measures 12 feet by 15 feet if the carpet costs $12.50 per square yard?
   A. $2250   B. $750   C. $650   D. $250

9. A tent is being set up with a 12-foot pole in the center. Four pieces of heavy-duty rope are to be attached from the top of the center pole to points on the ground that are 9 feet from the base of the pole. What is the total length of the four pieces of rope?
   A. 60 feet   B. 50 feet   C. 45 feet   D. 15 feet

10. The owner of a rectangular piece of land 12 yards in length and 9 yards in width wants to divide it into two parts. He plans to join two opposite corners with a fence. The cost of the fence will be approximately $40 per linear foot. What is the estimated cost for the fence needed by the owner?
    A. $27,000   B. $2520   C. $1800   D. $1260

LAMI   GEOMETRY Solutions Form C

$\underline{k \quad h \quad dk \quad d \quad c \quad m}$

Basic
m ℓ g

1. c to basic unit
   2 to left.
   250 cm = $\boxed{2.5 m}$

2. k to basic unit.
   3 to right.
   250 kg = $\boxed{250,000 g}$

3. basic to m.
   2 to right.
   50 ℓ = $\boxed{50,000 mL}$

4. $P = 2w + 2\ell$
   $= 80' + 140' = 220'$
   $= \frac{220}{3} yd \times 2 = \boxed{146.67}$

5. $r = 10'$
   $C = \pi d = \boxed{20\pi '}$
   $A = \pi r^2 = \boxed{100\pi \, sq'}$

6. $C = \pi d = 8\pi ''$
   $d = 8''$
   $\boxed{r = 4''}$
   $A = \pi r^2 = \boxed{16\pi \, sq \, in}$

7. $5x + 12 + 2x = 180°$
   $7x = 168°$
   $x = 24°$
   $2x \boxed{48°}$
   $5x + 12 = \boxed{132°}$

8. Supplementary to 35°
   $\boxed{\angle HBC = 145°}$

9.
   $\frac{180}{-101}$
   $\boxed{79°}$

10. 6 sides → 4 triangles   6-2=
    $180° \times 4 = \boxed{720°}$
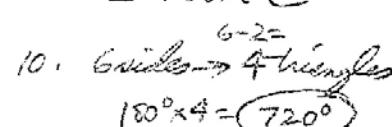
11.
    $\boxed{x = 100°}$
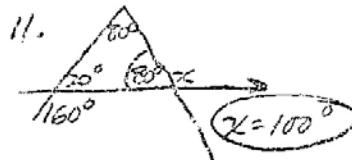
12. Quadril sum = 360°
    64          $-342°$
    121         $\boxed{18°}$
    157
    ___
    342°

13. 5 sides → 3 triangles
    $180 \times 3 = 540°$
    70   -400
    150         $\boxed{140°}$
    90
    + 90
    ___
    400°

14. $5^2 + 12^2 = x^2$
    $25 + 144 = x^2$
    $169 = x^2$
    $\boxed{x = 13}$

15. $11^2 + x^2 = (\sqrt{170})^2$
    $121 + x^2 = 170$
    $x^2 = 49$
    $\boxed{x = 7}$
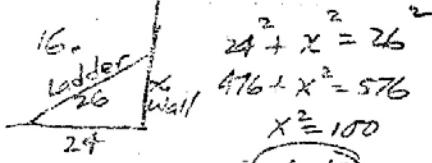
16.
    ladder 26   wall
    24
    $24^2 + x^2 = 26^2$
    $476 + x^2 = 576$
    $x^2 = 100$
    $\boxed{x = 10}$

17. $\frac{x}{6} = \frac{12}{9}$
    $9x = 6 \cdot 12$
    $x = \frac{6 \cdot 12}{9} = \boxed{8}$

18. $\frac{x}{15} = \frac{12}{18}$
    $18x = 15 \cdot 12$
    180

19. $\frac{x}{56'} = \frac{3}{8'}$
    $8x = 56 \cdot 3$
    $x = \frac{56 \cdot 3}{8} = \boxed{21'}$

20. $A_{outer} = 20 \times 60' = 1200 \, sq \, ft$
    $A_{inner} = 10' \times 30' = 300 \, sq \, ft$
    $\boxed{900 \, sq \, ft}$

21. $A_1 = \pi r^2 = 16\pi$ @ 1.50
    $A_2 = \pi r^2 = 144\pi = 9 \, times$
    $1.50 \times 9 = \boxed{13.50}$

22. $A = 10' \times 18' = 180 \, sq \, ft$
    $= \frac{180}{9} = 20 \, sq \, yd$
    $Cost = 20 \times 15 = \boxed{300}$
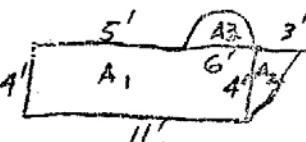
23.
    $A_1 = 4 \times 11 = 44 \, sq \, ft$
    $A_2 = \frac{4 \times 3}{2} = 6 \, sq \, ft$
    $A_3 = \frac{\pi r^2}{2} = \frac{9\pi}{2} \, sq \, ft$
    $\boxed{50 + \frac{9\pi}{2} \, sq \, ft}$

24. $V = \pi r^2 h = \pi \cdot 25 \cdot 6$
    $= \boxed{150\pi \, cu \, in.}$

25. $V = \frac{4}{3}\pi r^3$ $r = 5 ft$.
    $= \frac{4}{3}\pi \cdot 125 = \boxed{\frac{500\pi}{3} \, cu \, ft}$

26. $V_1 = \frac{4}{3}\pi 2^3$ @ 6.00
    $V_2 = \frac{4}{3}\pi 10^3$
    V_2 is 5^3 or 125 times as
    $125 \times 6 = \boxed{750}$

27.
    $h^2 + 12^2 = 13^2$
    $h^2 + 144 = 169$
    $h^2 = 25$