

LIBERAL ARTS NAME - GEOMETRY 12.5 - MA NAME

Show all work on this test on separate paper.

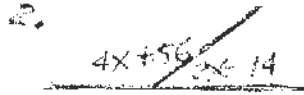
Turn in all work - books. Calculators allowed. "π" allowed in answers. SUBSTITUTION when appropriate!

1. Given a 51° angle. If true, find x and the measure of each angle.

a) Give the complement _____.

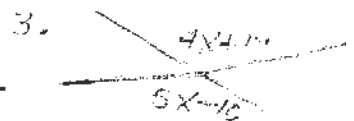
b) Give the supplement _____.

c) Is the angle acute, obtuse, right or straight? _____.



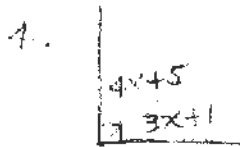
a) $x =$ _____

b) angles _____.



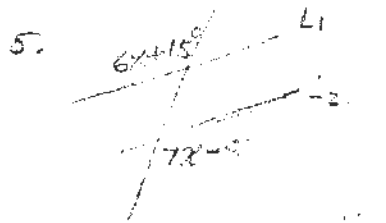
a) $x =$ _____

b) angles _____.



a) $x =$ _____

b) angles _____.



l_1 and l_2 are parallel

a) $x =$ _____

b) angles _____.



l_1 and l_2 are parallel

a) $x =$ _____

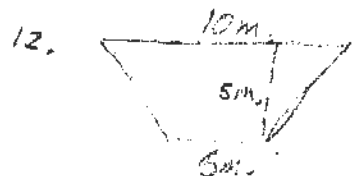
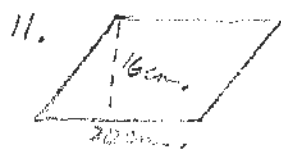
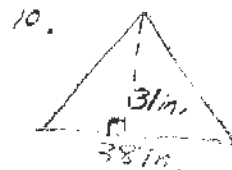
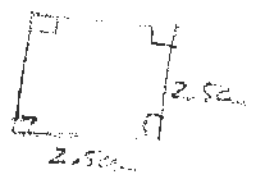
b) angles _____.

7. Can a reflex angle of a triangle be an acute angle? Explain with an example.

8. Find x and the measure of each angle.

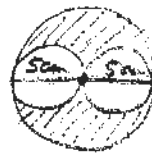


9. Find x and find the area. (Give units!)



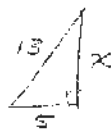
13. If a circle has circumference 25π , what is the radius and area?

14. Find the shaded area.

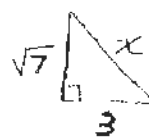


15. One side of a triangle is 3 times as long as the second side. The third side is 11 inches longer than the second side. If the perimeter is 61 inches, find the lengths of the three sides.

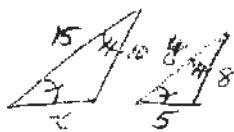
16. Find x .



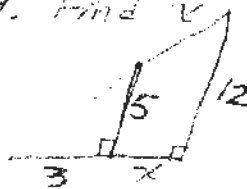
17. Find x .



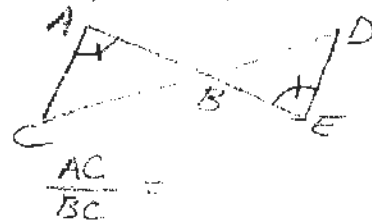
18. Find x and y .



19. Find x .



20. Complete the proportion.



21. Find the volume of a sphere of radius 2 cm.

22. Find the volume of a cylinder whose base radius is 10 cm, and height 5 cm.

23. Find the volume of a cone whose base has a diameter of 12 m, and height 10 m.

$V = \frac{4}{3}\pi r^3$
 $V = \pi r^2 h$
 $V = \frac{1}{3}\pi r^2 h$
 $V = \frac{1}{3}\pi r^2 h$

25. A box is 6" long, 4" wide, and 2" deep. Find the volume and the surface area.

26. Find the surface area of the cylinder:



27. A concrete slab is to be poured that is 15 feet long, 12 feet wide, and 6 inches thick. If the cost of concrete is \$39 per cubic yard, find the cost for the slab.

28. A rectangular yard is 90 feet by 120 feet. It is to be surrounded by a fence that costs \$6.50 per yard. Find the cost of the fence.

29. The trunk of a tree has a 1.2 meter diameter. What is the circumference?

- 30 a) 6.5 cm = _____ m.
 b) 0.025 L = _____ mL.
 c) 3750 kg = _____ g.
 d) 3750 mg = _____ g.

LAM I Geometrics - Form MA Solutions

1a) $90 - 51 = 39^\circ$
 b) $180 - 51 = 129^\circ$
 c) **Acute**

2. $4x + 56 + 2x - 14 = 180$
 $6x + 42 = 180$
 $6x = 138$
 a) $x = 23^\circ$

3. $4x + 17 = 5x - 10$
 a) $x = 27^\circ$
 All angles = $4x + 17 = 125^\circ$
 $5x - 10 = 125^\circ$

4. $4x + 5 + 3x + 1 = 90^\circ$
 $7x + 6 = 90$
 $7x = 84$

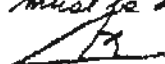
a) $x = 12^\circ$
 b) $4x + 5 = 53^\circ$
 $3x + 1 = 37^\circ$

5. $6x + 15 = 7x - 5$
 a) $x = 20$

b) $6x + 15 = 135^\circ$
 $7x - 5 = 135^\circ$

6. $4x + 6 + 2x = 180$
 $6x = 174$

a) $x = 29^\circ$
 b) $4x + 6 = 122^\circ$
 $2x = 58^\circ$

7. **Yes**
 The interior angle must be obtuse.


8. $x + 7 + 2x - 5 = 4x - 40$
 $3x + 2 = 4x - 40$
 $x = 42^\circ$
 $x + 7 = 49^\circ$
 $2x - 5 = 79^\circ$
 $4x - 40 = 128^\circ$

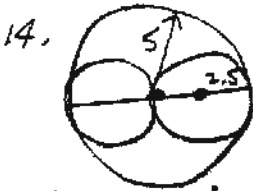
9. $A = \frac{1}{2}bh$
 $= \frac{1}{2} \cdot 2.5 \cdot 20$
 $= 25 \text{ cm}^2$

10. $A = \frac{1}{2}bh$
 $= \frac{1}{2} \cdot 38 \cdot 31$
 $= 589 \text{ in}^2$

11. $A = \frac{1}{2}bh$
 $= \frac{1}{2} \cdot 20 \cdot 16$
 $= 160 \text{ cm}^2$

12. $A = \frac{1}{2}(B + b)h$
 $= \frac{1}{2}(6 + 10) \cdot 5$
 $= 40 \text{ m}^2$

13. $C = 2\pi r = \pi d$
 $d = 28 = 2r$
 $r = 14 \text{ units}$
 $A = \pi r^2$
 $= 196\pi \text{ units}^2$

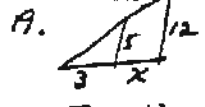
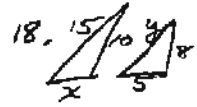


14. $A_{\text{large}} = \pi r^2 = 25\pi$
 $A_{\text{small}} = \pi r^2 = 2.5^2 \pi = 6.25\pi$
 $A_{\text{shaded}} = 25\pi - 12.5\pi = 12.5\pi \text{ cm}^2$

15. Let $x = \text{second side}$
 $3x = 1^{\text{st}} \text{ side}$
 $x + 11 = 3^{\text{rd}} \text{ side}$
 $x + 3x + x + 11 = 61$
 $5x = 50$
 $x = 10 \text{ in}$
 $3x = 30 \text{ in}$
 $x + 11 = 21 \text{ in}$

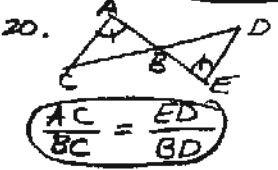
16. $5^2 + x^2 = 13^2$
 $25 + x^2 = 169$
 $x^2 = 144$
 $x = 12$

17. $(\sqrt{7})^2 + 3^2 = x^2$
 $7 + 9 = x^2$
 $x^2 = 16$
 $x = 4$



18. $\frac{x}{5} = \frac{10}{8}$
 $8x = 50$
 $x = 6.25$

19. $\frac{5}{3} = \frac{12}{3+x}$
 $15 + 5x = 36$
 $5x = 21$
 $x = 2\frac{1}{5}$



20. $\frac{AC}{BC} = \frac{ED}{BD}$
 $25 = V = lwh = 6 \cdot 4 \cdot 2 = 48 \text{ in}^3$
 $SA = 2lw + 2lh + 2lh$
 $= 2(6 \cdot 4) + 2(6 \cdot 2) + 2(4 \cdot 2)$
 $= 48 + 24 + 16 = 88 \text{ in}^2$

21. $V = \frac{4}{3}\pi r^3$
 $= \frac{4}{3}\pi \cdot 2^3$
 $= \frac{32\pi}{3} \text{ cm}^3$

22. $V = \pi r^2 h$
 $= \pi \cdot 10^2 \cdot 5$
 $= 500\pi \text{ cm}^3$

23. $V = \frac{1}{3}\pi r^2 h$
 $= \frac{1}{3}\pi \cdot 6^2 \cdot 10 = 120\pi \text{ cm}^3$

25. πr^2
 $2\pi r \cdot h$
 πr^2

27. $V = lwh$
 $= 15 \cdot 12 \cdot 5 = 900$
 $SA = 2lw + 2lh + 2lh$
 $= 2(15 \cdot 12) + 2(15 \cdot 5) + 2(12 \cdot 5)$
 $= 360 + 150 + 120 = 630$

28. $P = 2w + 2l$
 $= 2(40) + 2(120) = 420$
 $Cost = \frac{420}{3} \cdot 6.50 = 910$

29. $C = \pi d$
 $= \pi \cdot (1.2 \text{ m}) = 1.2\pi \text{ m}$

30. $1000 \frac{m}{1000} = 1 \text{ km}$
 $100 \frac{m}{100} = 1 \text{ hm}$
 $10 \frac{m}{10} = 1 \text{ dam}$
 $1 \text{ m} = 1 \text{ m}$
 $100 \frac{m}{100} = 1 \text{ dm}$
 $10 \frac{m}{10} = 1 \text{ cm}$
 $1 \text{ m} = 1000 \text{ mm}$

30a) $0.65 \text{ m} \cdot c) 3750000$
 b) $25 \text{ mL} \cdot d) 3.75 \text{ g}$