

GEOMETRIC MEASURES E NAME

Show all work on this test or on separate paper.

CALCULATORS. Leave answers in terms of π . Give UNITS

1.



- a) Number of vertices _____
- b) Number of faces _____
- c) Number of edges _____
- d) $V - e + f =$ _____

2. A circle has diameter 12 feet.

a) Circumference =

b) Area =

3. The circumference of a circle is 20π !

a) Diameter =

b) Area =

4. Find x and the angles:

$$\frac{5x+40}{3x-20}$$

5. Find x and the angles:

$$\frac{5x-40}{3x+20}$$

6. Given angle of 24° .

a) Supplement = _____

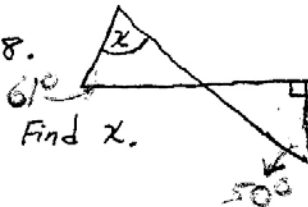
b) Complement = _____

7.



Find x .

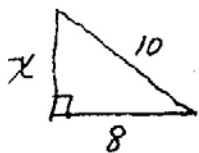
8.



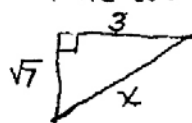
Find x .

9. Find the sum of the angles of a hexagon (6 sided figure).

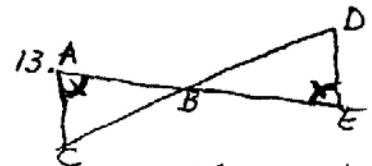
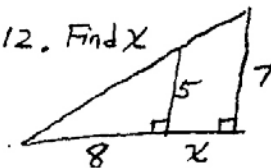
10. Find x :



11. Find x :



12. Find x :

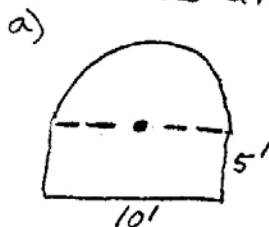


Complete the proportion:

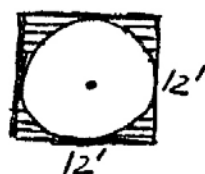
$$\frac{AB}{BE} = \frac{AC}{DE}$$

14. The length of a rectangle is 3 more than twice the width. The perimeter is 72 meters. Find the dimensions and area.

15. Find the area



- b) Find shaded area.



- 16a) How many square feet are in one square yard?
 b) How many cubic feet are in one cubic yard?
 c) How many square centimeters are in one square meter?
 d) How many cubic centimeters are in one cubic meter?

17. A pizza with radius 5 inches costs \$4. How much should a pizza of radius 10 inches cost?

18. If a cube with side 2 feet costs \$10, how much should a cube of side 10 feet cost?

19. Find the volume of a cylinder whose base has radius 5' and height is 7'.

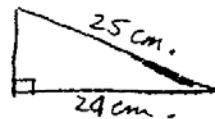
20. Find the volume of a cone whose base has radius 10 m and height is 8 m.

21. Find the volume of a sphere whose diameter is 10 feet.

22. Find the volume of a box where $l = 10$ ft, $w = 6$ inches, and $h = 2$ yards.

23. A room is 10 feet by 15 feet. If carpet is \$12 per square yard, how much will it cost to carpet the room?

24. Find the area:

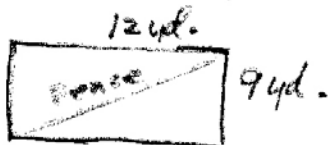


- 25a) $35 \text{ m} = \underline{\hspace{2cm}} \text{ cm}$
 b) $7.2 \text{ cl} = \underline{\hspace{2cm}} \text{ ml}$
 c) \dots

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

MULTIPLE CHOICE:

26. What is the distance around a circular swimming pool that has a 9-foot radius?
 A. 81π feet B. 18π feet C. 18π sq ft D. 16π feet
27. What is the area of a circular region whose diameter is 12 centimeters?
 A. 12π sq cm B. 24π sq cm C. 36π sq cm D. 144π sq cm
28. What is the surface area of a rectangular solid that is 15 inches long, 10 inches wide, and 5 inches high?
 A. 550 in B. 550 sq in C. 750 sq in D. 750 cu in
29. What is the volume of a right circular cylinder that has a radius of 6 inches and is 8 inches high?
 A. 92π cubic inches
 B. 288π cubic inches
 C. 288π square inches
 D. 368π cubic inches
82. What is the volume of a circular cone that has a radius of 12 inches and is 10 inches high?
 A. 1440π cubic inches
 B. 480π square inches
 C. 480π cubic inches
 D. 400π cubic inches
30. The amount of wall surface that can be covered by the contents of a can of paint is given by which measure?
 A. liters B. gallon C. square feet D. cubic feet
31. 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. \$65 B. \$130 C. \$1560 D. \$3510
32. 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. \$910 B. \$1365 C. \$2730 D. \$7800
33. The trunk of a tree has a 1.2-meter diameter. What is its circumference?
 A. 0.36π sq meters B. 0.6π meters C. 1.2π meters D. 1.44π sq meters
34. 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. \$250 B. \$650 C. \$750 D. \$2250
35. 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 as shown in the diagram below. 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. \$1260 B. \$1800 C. \$2520 D. \$27,000

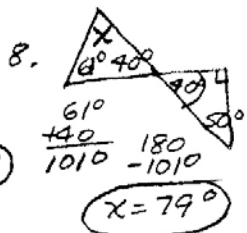


FINITE MATH - GEOMETRIC MEASURES - Solutions from E

1a) 4 2a) $C = \pi d = 12\pi \text{ ft}$ 3. $C = 20\pi = \pi d$ 4. $5x + 40 + 3x - 20 = 180$
 b) 4 $= 12\pi \text{ ft}$ a) $d = 20 \text{ ft}$ $8x + 20 = 180$
 c) 6 b) $A = \pi r^2 (r=6)$ b) $r = 10 \text{ ft}$ $8x = 160$ $5x + 40 = 140$
 d) 2 $= 36\pi \text{ ft}^2$ $A = 100\pi \text{ ft}^2$ $x = 20$ $3x - 20 = 40$

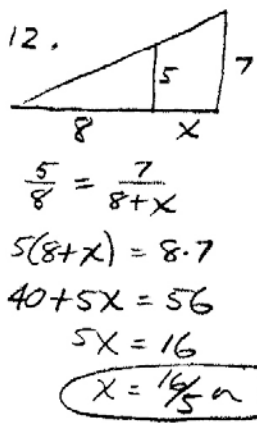
5. $5x - 40 = 3x + 20$
 $2x = 60$
 $x = 30$
 $5x - 40 = 110$

6a) $180 - 24 = 156$
 b) $90 - 24 = 66$
 7. $x = 70 + 60 = 130$

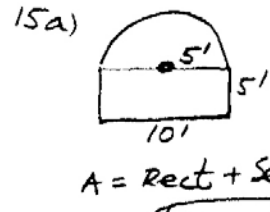


9. 6 sides \Rightarrow 4 Triangles.
 $\frac{4 \times 180}{2} = 720$

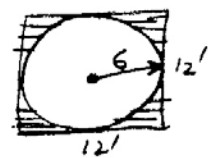
10. $x^2 + 8^2 = 10^2$
 $x^2 + 64 = 100$
 $x^2 = 36$
 $x = 6$
 11. $(\sqrt{7})^2 + 3^2 = x^2$
 $7 + 9 = x^2$
 $16 = x^2$
 $x = 4$



13. $\frac{AB}{BE} = \frac{CB}{BD} \text{ or } \frac{AC}{DE}$
 14. Let $x = \text{width}$
 $2x + 3 = \text{length}$
 $2(x) + 2(2x + 3) = 72$
 $2x + 4x + 6 = 72$
 $6x = 66$
 $x = 11 \text{ m}$
 $2x + 3 = 25 \text{ m}$



$A = \text{Rect} + \text{Semi}$
 $A = 11 \times 25 = 275 \text{ m}^2$
 $A = (50 + \frac{25\pi}{2}) \text{ ft}^2$



$A = \text{SQ} - \text{CIRCLE}$
 $A = (144 - 36\pi) \text{ ft}^2$

16a) $3^2 = 9$ b) $3^3 = 27$
 c) 100^2 d) 100^3
 or $10,000$ or $1,000,000$

17a) $A_1 = \pi 5^2 \rightarrow 4$ $\frac{25\pi}{100\pi} = \frac{4}{x}$
 $A_2 = \pi 10^2 \rightarrow x$
 $x = 16$
 Radius is doubled
 $4 \times 2^2 = 16$

18. $V_1 = 2^3 \rightarrow 10$ $\frac{2^3}{10^3} = \frac{10}{x}$
 $V_2 = 10^3 \rightarrow x$ $(\frac{2}{10})^3 = \frac{10}{x}$
 Radius is mult by 5.
 Vol is mult by 5^3
 $10 \times 5^3 = 1250$
 $\frac{1}{5^3} = \frac{10}{x}$
 $x = 1250$

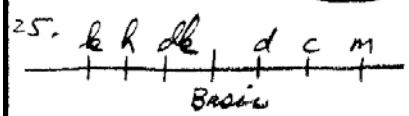
19. $V = \pi r^2 h$
 $= \pi \cdot 25 \cdot 7$
 $= 175\pi \text{ ft}^3$
 20. $V = \frac{1}{3} \pi r^2 h$
 $= \frac{1}{3} \pi \cdot 10^2 \cdot 8$
 $= \frac{800\pi \text{ m}^3}{3}$

21. $V = \frac{4}{3} \pi r^3$
 $r = 5$
 $V = \frac{4}{3} \pi 125 = \frac{500\pi}{3} \text{ ft}^3$

22. $V = lwh$
 $= 10 \cdot \frac{1}{2} \cdot 6$
 $= 30 \text{ ft}^3$
 or $= 120 \cdot 6 \cdot 72$
 $= 518400 \text{ in}^3$

23. $A = 10' \times 15' = 150 \text{ ft}^2$
 Cost = $\frac{150}{9} \cdot 12$
 $= \frac{50}{3} \cdot 12$
 $= 200$

24. $x^2 + 24^2 = 25^2$
 $x^2 + 576 = 625$
 $x^2 = 49$
 $x = 7$
 $A = \frac{ch}{2} = \frac{24 \cdot 7}{2}$
 $= 84 \text{ cm}^2$



- a) $35 \text{ m} = 3500 \text{ mm}$
- b) $7.2 \text{ cl} = 72 \text{ ml}$
- c) $0.025 \text{ m}^3 = 0.000000025 \text{ m}^3$
- 26. B 30. C
- 27. C 31. B
- 28. B 32. A
- 29. B 33. C
- 30. C 34. A 35. B