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MATH LECTURE - 07

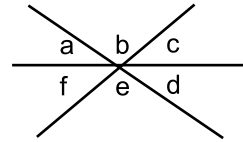
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PART I: CLASS PRACTICE

GROUP 1: ANGLES

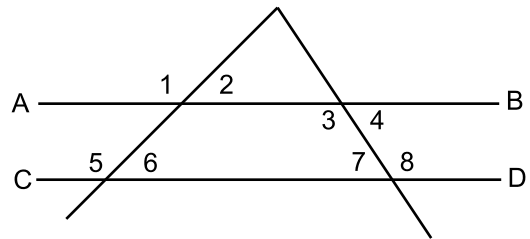
1. In the given diagram, $\angle a = \angle e$, and $\angle f = 50^\circ$. $\angle c + \angle d = ?$

- a. 105°
- b. 110°
- c. 115°
- d. 120°
- e. None of these



2. In the diagram shown below, AB is parallel to CD. Which of the following statements is not necessarily true?

- a. $\angle 1 + \angle 2 = 180^\circ$
- b. $\angle 4 = \angle 7$
- c. $\angle 5 + \angle 8 + \angle 2 + \angle 4 = 360^\circ$
- d. $\angle 2 + \angle 3 = 180^\circ$
- e. $\angle 2 = \angle 6$



3. If a ship is sailing in a northerly direction, and then turns to the right until it is sailing in a southwesterly direction, it has gone through a rotation of how many degrees?

- a. 45°
- b. 90°
- c. 135°
- d. 180°
- e. 225°

4. How many degrees are there in the angle that equals to its own complement?

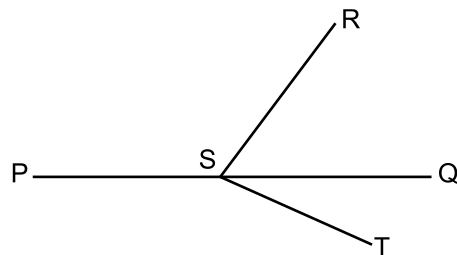
- a. 90°
- b. 45°
- c. 60°
- d. 180°
- e. 30°

5. Angles A and B of triangle ABC are both acute angles. Which of the following best describes angle C?

- a. Angle C is between 0° and 180° .
- b. Angle C is between 0° and 90° .
- d. Angle C is between 60° and 180° .
- d. Angle C is between 60° and 120° .
- e. Angle C is between 60° and 90° .

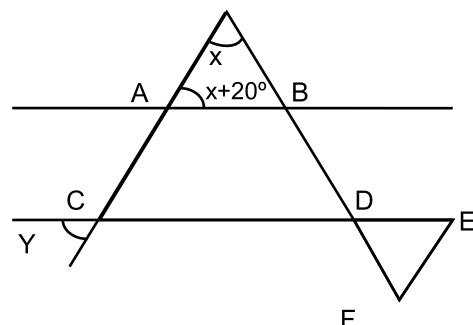
6. In the figure, PSQ is a straight line and RS is perpendicular to ST. If $\angle RSQ = 48^\circ$, how many degrees are there in $\angle PST$?

- a. 48°
- b. 132°
- c. 90°
- d. 136°
- e. 138°



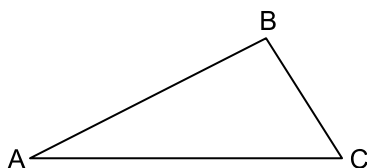
7. In the figure beside, AB is parallel to CD and $\triangle DEF$ is an equilateral triangle. Find the measure of $\angle Y$.

- a. 50°
- b. 55°
- c. 60°
- d. 70°
- e. Cannot be determined



GROUP 2: TRIANGLES

8. In $\triangle PQR$, $PR = 7.0$, and $PQ = 4.5$. Which of the following cannot possibly represent the length of QR ?
- a. 2.0 b. 3.0 c. 3.5 d. 4.5 e. 5.0



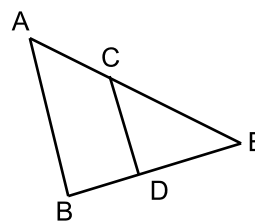
9. In the figure above, $AC = 6$, and $BC = 3$. Point P (not shown) lies on AB between A and B such that $CP \perp AB$. Which of the following could be the length of CP ?

- a. 2 b. 4 c. 5 d. 7 e. 8

10. In the following diagram, $AC = CE$ & $BD = DE$. Which of the following statements is (are) true?

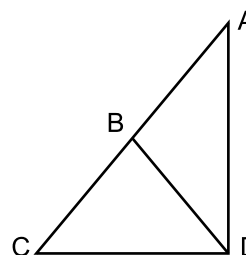
1. AB is twice as long as CD . 2. AB is parallel to CD . 3. $\triangle AEB$ is similar to $\triangle CED$.

- a. 1 only
b. 1 and 2 only
c. 1 and 3 only
d. 1, 2, and 3
e. None of these



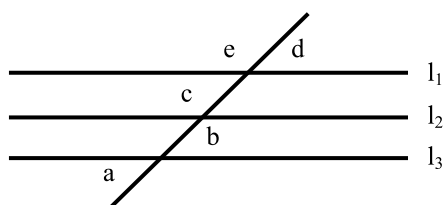
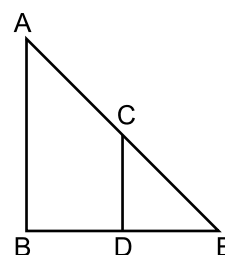
11. In the following diagram, if $BC = CD = BD = 1$, and $\angle ADC$ is a right angle, what is the perimeter of $\triangle ADC$?

- a. 3
b. $2 + \sqrt{2}$
c. $2 + \sqrt{3}$
d. $3 + \sqrt{3}$
e. 4



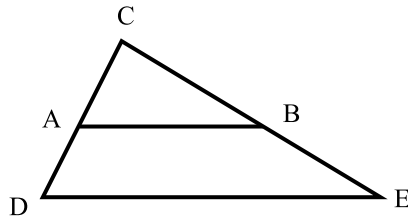
12. In the following diagram, AB and CD are both perpendicular to BE . If $EC = 5$, and $CD = 4$, what is the ratio of AB to BE ?

- a. 1:1
b. 4:3
c. 5:4
d. 5:3
e. None of these



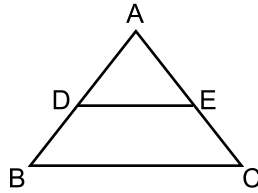
13. In the figure above, $l_1 \parallel l_2$ and $l_2 \parallel l_3$. What is the value of $a + b + c + d + e$?

- a. 180° b. 270° c. 360° d. 450° e. cannot be determined.



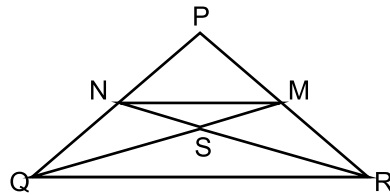
14. In the triangle CDE above, $AD = BE$ and $CD < CE$. Which of the following is true?
 a. $CA > CB$ b. $CA < CB$ c. $AB > CE$ d. $CD < CA$ e. $AB \parallel DE$.

15. In the figure shown below, DE is parallel to BC. If the area of $\triangle ADE$ is half that of trapezoid DECB, what is the ratio of AE to AC?



- a. 1:2 b. $1:\sqrt{2}$ c. 1:3 d. $1:\sqrt{3}$ e. $\sqrt{3}:1$

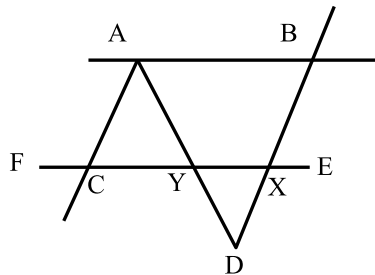
16. In the figure below, M and N are midpoints of the sides PR and PQ respectively, of $\triangle PQR$. What is the ratio of the area of $\triangle MNS$ to that of $\triangle PQR$?



- a. 2:5
 b. 2:9
 c. 1:4
 d. 1:8
 e. 1:12

17. In the figure, AC is parallel to BD and AB is parallel to FE. If $\angle BXE = 50^\circ$ and AD bisects $\angle FAB$, find $\angle ADB$.

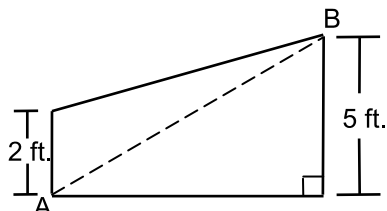
- a. 50° b. 60° c. 65°
 d. 70° e. none of these



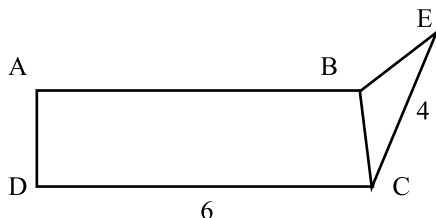
GROUP 3: QUADRILATERALS, TRAPEZOIDS

18. The smallest angle of a quadrilateral is x . The 2nd angle is twice the smallest and the 3rd angle is equal to the 2nd one. The 4th angle is equal to the sum of the other three. Find the value of x .
 a. 30° b. 36° c. 72° d. 144° e. 180°

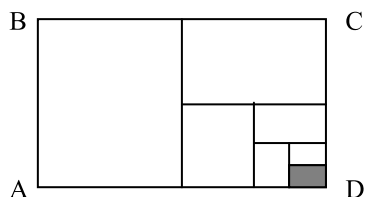
19. In quadrilateral ABCD, $\angle A + \angle B + \angle C = 2\angle D$. What is the degree measure of $\angle D$?
 a. 135 b. 120 c. 90 d. 67.5 e. 45



20. The trapezoid shown in the figure above represents the cross section of the rudder of a ship. If the distance from A to B is 13 feet, what is the area of the cross section of the rudder in square feet?
 a. 39 b. 40 c. 42 d. 45 e. 46.5



21. In the figure above, $\overline{BC} \cong \overline{BE}$. If R represents the perimeter of rectangle ABCD and T represents the perimeter of $\triangle CBE$, what is the value of $R - T$?
 a. 2 b. 8 c. 30 d. $12 - 4 - \sqrt{2}$
 e. It cannot be determined from the information given.

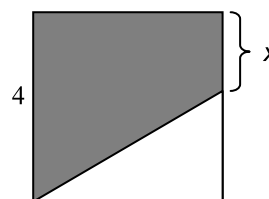


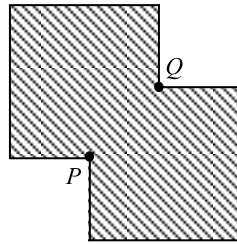
22. In the figure above, rectangle ABCD is made up of seven non-overlapping rectangles. The two smallest rectangles have the same area. Each of the other rectangles has twice the area of the next smaller rectangle. The area of the shaded rectangle is what fraction of the area of rectangle ABCD?

- a. $\frac{1}{128}$ b. $\frac{1}{64}$ c. $\frac{1}{32}$ d. $\frac{1}{16}$ e. $\frac{1}{7}$

23. In the square below with side 4, the ratio of $\frac{\text{area of shaded region}}{\text{area of unshaded region}} =$

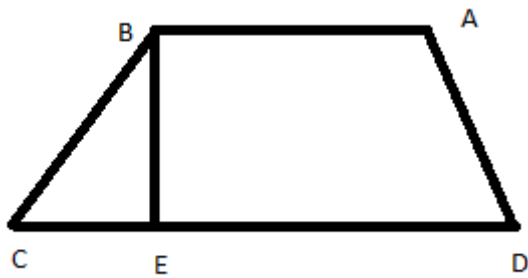
- a. $\frac{2+x}{4}$ b. $\frac{4-x}{8}$ c. 2
 d. $\frac{4+x}{4-x}$ b. $2x$





24. The figure above is formed by two overlapping squares, each having sides of 6 centimeters in length. If P and Q are the midpoints of the intersecting sides, what is the area, in square centimeters, of the shaded region?

- a. 72 b. 63 c. 60 d. 54 e. 45



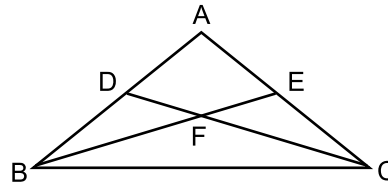
25. The area of a trapezoid is 50 square meters, where $AB \parallel CD$. If $CD = 12$ m and $BE = 5$ m, what is the length of AB ?

- a. 6 m b. 7 m c. 8 m d. 9 m e. Cannot be determined

PART II: TAKE-HOME ASSIGNMENT

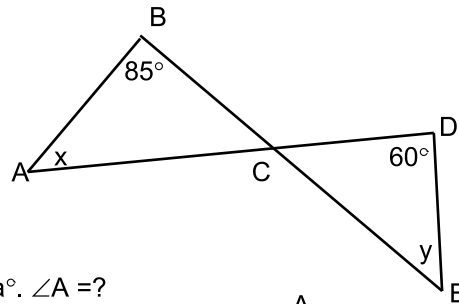
1. In the figure below, D is the mid-point of AB and E is the mid-point of AC. What is the relation between the area of BFC and the area of ADFE?

- a. Area of BFC > Area of ADFE
- b. Area of BFC = Area of ADFE
- c. Area of ADFE > Area of BFC
- d. Area of ADFE = 1.5 times Area of BFC
- e. Either (a) or (c)



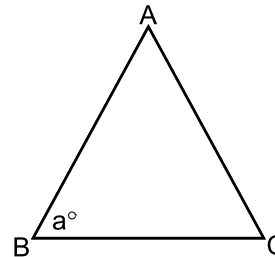
2. In the figure, line segments AD and BE intersect at C. What is the value of x in terms of y?

- a. $85^\circ - y$
- b. $90^\circ - y$
- c. $y - 15^\circ$
- d. $y - 25^\circ$
- e. $y + 35^\circ$



3. In the diagram below, $AB = AC$, measure of $\angle B = a^\circ$. $\angle A = ?$

- a. $a^\circ - 180^\circ$
- b. $2a^\circ - 180^\circ$
- c. $180^\circ - 2a^\circ$
- d. $180^\circ - a^\circ$
- e. $(180^\circ - a^\circ)/2$



4. How many degrees are there in the angle which equals to half of its own supplement?

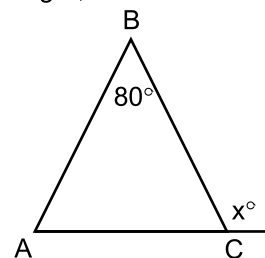
- a. 30°
- b. 45°
- c. 60°
- d. 90°
- e. 120°

5. x, y and z are the angle of a triangle. If $\angle x = 2\angle y$, $\angle y = \angle z + 30^\circ$, how many degrees are there in $\angle x$?

- a. 22.5°
- b. 37.5°
- c. 52.5°
- d. 90.0°
- e. 105.0°

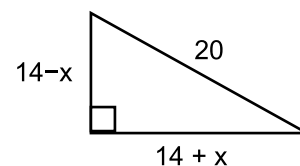
6. In the figure below, BC is the longest side of $\triangle ABC$ and x is an integer, what is the smallest possible value of x?

- a. 100°
- b. 130°
- c. 141°
- d. 160°
- e. 161°



7. If the figure below is a right triangle, what is the value of x?

- a. 1
- b. 2
- c. 4
- d. 200
- e. 400

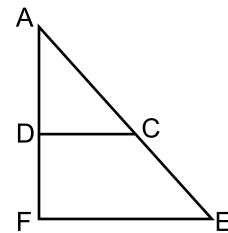


8. City A is 200 miles from City B, and City B is 400 miles from City C. Which of the following best describes the distance between City A and City C? (Note: The cities A, B, and C do not all lie on a straight line)
- It must be greater than zero.
 - It must be greater than 200 miles.
 - It must be less than 600 miles and greater than zero.
 - It must be less than 600 miles and greater than 200 miles.
 - It must be exactly 400 miles.

9. The perimeter of a right triangle is 18 inches. If the midpoints of the three sides are joined by line segments, they form another triangle. What is the perimeter of this new triangle?
- 3 inches
 - 6 inches
 - 9 inches
 - 12 inches
 - Cannot be determined

10. In this following diagram, $DC \parallel FE$, $AD = DF$, $DC = 4$, and $DF = 3$. What is the length of FE ?

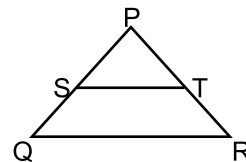
- 5
- 6
- 8
- 9
- 10



11. The hypotenuse of a right triangle is exactly twice as long as the shorter leg. What is the number of degrees in the smallest angle of the triangle?
- 30°
 - 45°
 - 60°
 - 90°
 - Cannot be determined

12. In the figure below, QR is parallel to ST and $PQ > PR$. If $\angle PTS = 35^\circ$, which of the following can be a value of $\angle PQR$?

- 25
- 30
- 35



- only i
- only ii
- only iii
- both i and ii
- both ii and iii

13. All isosceles right triangles must be:

- similar
- congruent
- equilateral
- equal in area
- none of these

14. ABC is an equilateral triangle having a perimeter of 6 centimeters. If AD is a median of this triangle, what is the perimeter of $\triangle ADC$?

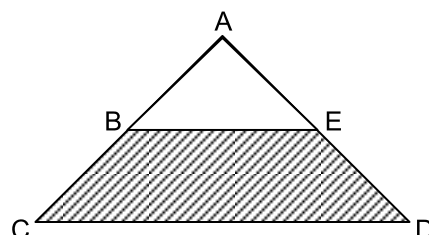
- $3 + \sqrt{3}$
- 4
- 5
- $5\sqrt{3}$
- Cannot be determined

15. The angles of a quadrilateral are in the ratio 1:2:3:4. What is the number of degrees in the largest angle?

- 72°
- 96°
- 120°
- 144°
- 150°

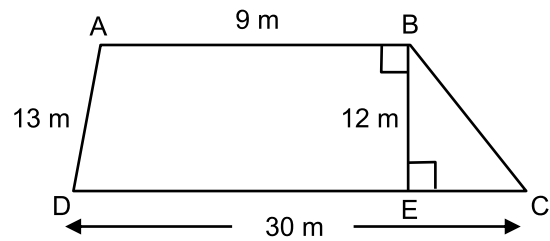
16. If $BE \parallel CD$, and $BC = AB = 5$, $AE = 5$, and $CD = 12$, what is the area of trapezoid BEDC?

- 18
- 24
- 36
- 60
- 72



17. A plot of land is in the shape of a trapezoid ABCD whose dimensions are given in the figure below. What is the perimeter of the land in meter?

- a. 48
- b. 64
- c. 65
- d. 72
- e. Cannot be determined



18. If the length of a rectangle is increased by 20% and width is decreased by 20%, then the area of the rectangle:

- a. decreases by 20%. b. decreases by 4%. c. is unchanged.
- d. increases by 20% e. increases by 4%

19. James lives on the corner of a rectangular field which measures 160 yards by 120 yards. If he wants to walk to the opposite corner, he can either travel along the perimeter of the field, or cut directly across in a straight line. How many yards does he save by taking the direct route?

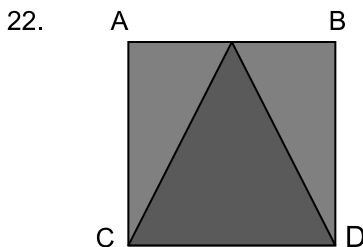
- a. 40 yards b. 60 yards c. 80 yards d. 100 yards e. 110 yards

20. If the degree measures of the angles of a triangle are in the ratio 3 : 4 : 5, what is the degree measure of the smallest angle?

- a. 15° b. 30° c. 45° d. 60° e. 75°

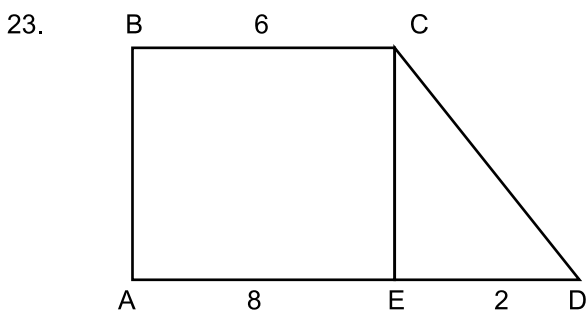
21. A board of length L feet is cut into two pieces such that the length of one piece is 1 foot more than twice the length of the other piece. Which of the following is the length, in feet, of the longer piece?

- a. $\frac{L+2}{2}$ b. $\frac{2L+1}{2}$ c. $\frac{L-1}{3}$ d. $\frac{2L+3}{3}$ e. $\frac{2L+1}{3}$



In the figure above, what is the ratio of the shaded region to the unshaded region?

- a. 1 b. $\frac{1}{2}$ c. 2 d. $\frac{1}{3}$ e. Cannot be determined

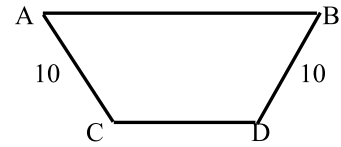


ABCD has an area equal to 28 sq. cm. BC is parallel to AD. BA is perpendicular to AD. If BC is 6 cm and AD is 8 cm, what is the length of CD?

- a. $2\sqrt{5}$ b. $2\sqrt{2}$ c. 2 d. 6 e. none of these

24. The sides of a rectangular floor are 16 feet by 24 feet. When a rectangular carpet is placed on the floor, a 4 feet wide strip of floor is exposed on all sides. What is the area of the carpet in sq. ft.?
- a. 320 b. 288 c. 352 d. 420 e. none of these

25. In the trapezoid, $\angle CAB = \angle DBA = 60^\circ$ and $AC = DB = 10$ cm. Find the area of the trapezoid.
- a. $250\sqrt{3}$ b. 250 c. 360.
d. $125\sqrt{3}$ e. Cannot be determined



PART III: REVIEW LESSON FOR THE NEXT LECTURE

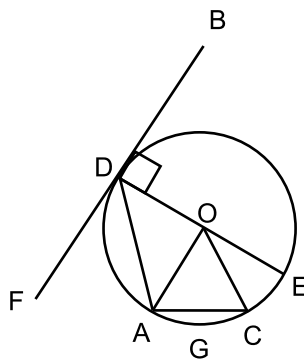
POLYGONS

A **Polygon** is a closed plane figure whose sides are straight lines and which has at least 3 sides or more. So the smallest polygon is a triangle. The sum of the angles in any polygon is equal to $180(n - 2)^\circ$, where n is the number of sides. Thus, in a polygon of 3 sides (a triangle), the sum of the angles is $180(3 - 2)^\circ$ or 180° .

A **Regular polygon** is a polygon all of whose sides are equal and all of whose angles are equal. These polygons have special properties.

Each angle of a regular polygon of 'n' sides = $\frac{(n-2) \times 180^\circ}{n}$

CIRCLE



A **circle** is a closed figure in which each point on the outer rim is equidistant from the center of the figure. In the circle given above, O is the center. The total length curved path of the circle is called **circumference**.

The distance from the center to the circle is the **radius**. In the given circle, OE is the radius.

Any line which connect two points on the circle is a **chord**. In the given circle, AC, and AD are chords.

A chord through the center of the circle is a **diameter**. A diameter is the longest chord of a circle. In the given circle, line segment DE or DOE is a diameter.

A **tangent** to a circle is a line that is perpendicular to the radius at the point of tangency and that passes through only one point of the circle. In the diagram, BF is a tangent.

An **arc** is a curved section of a circle. Two distinct points can form two different arcs; the shorter arc is called a **minor arc** and the longer one is called a **major arc**. In the given circle, AGC is a minor arc and ADE is a major arc.

A **central angle** of a circle is an angle with its vertex at the center and sides that are the radii. Arcs have the same degree measure as the central angle whose sides meet the circle at the two ends of the arc. $\angle AOC$, $\angle DOA$, and $\angle DOE$ are central angles in the given diagram.

An **inscribed angle** of a circle is an angle whose sides are two chords. The vertex of the angle lies on the circumference of the circle. $\angle ADE$ is an inscribed angle in the given diagram.

A **sector** of a circle is a slice of a circle formed by two radii and an arc. In the given circle, OAGC is a sector.

Theorems:

The length of the diameter of a circle is twice the length of the radius.

The circumference (length of the curve) is 2π times the length of the radius. π is a constant (the ratio of circumference to diameter) approximately equal to $22/7$ or 3.14 . The formula for the circumference of a circle is, $C = 2\pi r$ where C = circumference and r = radius.

- # An angle inscribed in a semicircle is always a right angle. [A semicircle is one half of a circle.]
- # The line segment connecting the mid-point of a chord and the center is perpendicular to the chord.
- # The perpendicular on the chord from the center bisects the chord.
- # Equal chords are equidistant from the center.
- # The longer a chord in a circle is, the closer it is to the center and vice versa.
- # All the inscribed angles from equal chords are equal.
- # From a given chord, the central angle is twice as much as each inscribed angle.
- # Any point outside a circle can extend exactly two tangent lines to the circle. The distances from the origin of the tangents to the points where the tangents intersect with the circle are equal.

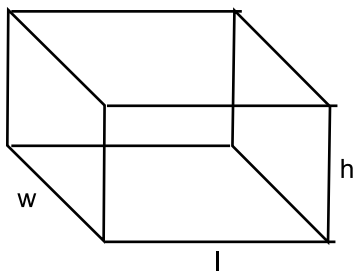
Length of an Arc = $2\pi r \times \frac{x}{360}$ [Here, r = radius, and x = central angle in degrees]

Area of a Sector = $\pi r^2 \times \frac{x}{360}$ [Here, r = radius, and x = central angle in degrees]

SOLID GEOMETRY

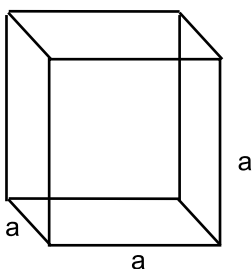
Solid geometry is concerned with three-dimensional shapes. Some examples of three-dimensional shapes are rectangular solids, cubes, cylinders, spheres, cones etc. We will mainly look at the volume formula and surface area formula of the solids.

I. RECTANGULAR SOLID



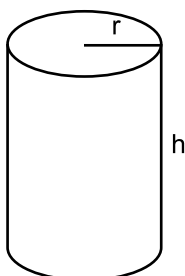
- In a rectangular solid, the length, width and height may be of different lengths.
- The volume of a rectangular solid would be the product of the length, width and height.
- Volume of rectangular solid = $l \times w \times h$
- Surface area of rectangular solid = $2lw + 2lh + 2wh = 2(lw + lh + wh)$

II. CUBE



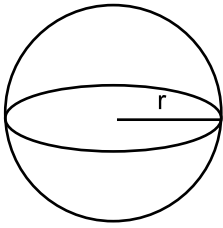
- A cube is a three-dimensional figure with six equal square sides.
- If a is the length of one of its sides, then the volume of the cube is $a \times a \times a$ or, volume of the cube = a^3
- The area of each face of a cube is a^2 . Since a cube has six square-shaped faces, its total surface area is 6 times a^2 or, Surface area of a cube = $6a^2$

III. CYLINDER



- A cylinder is a solid with two congruent circles joined by a curved surface.
- If the radius of the circular base is r and the height is h , then the volume of the cylinder is the area of the base \times height, i.e. volume = $\pi r^2 h$
- Surface area of a cylinder = $2 \times$ area of circle + area of rectangle. So, S.A. = $2\pi r^2 + 2\pi r h = 2\pi r (r + h)$

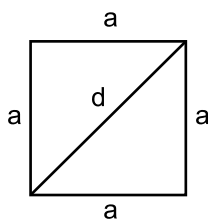
IV. SPHERE



- A sphere is a solid with all its points the same distance from the center.
- If the radius of the sphere is r , then the volume, $V = \frac{4}{3}\pi r^3$
- Surface area of a sphere, $S.A. = 4\pi r^2$

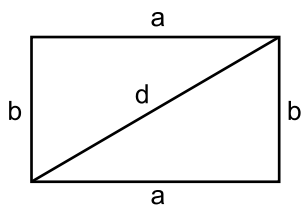
SOME COMMON GEOMETRIC FIGURES WITH NECESSARY FORMULA

Square



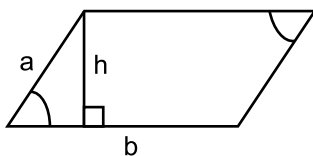
Quantity	Formula
Area	$A = a^2$
	$A = \frac{1}{2}d^2$
Perimeter	$P = 4a$
Diagonal	$d = a\sqrt{2}$

Rectangle



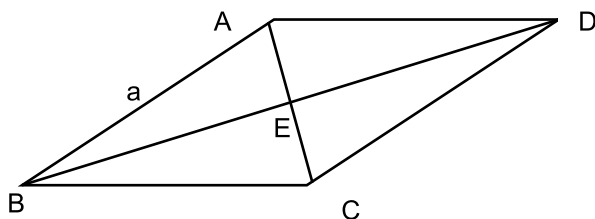
Quantity	Formula
Area	$A = ab$
Perimeter	$P = 2(a + b)$
Diagonal	$d = \sqrt{a^2 + b^2}$

Parallelogram



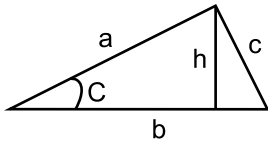
Quantity	Formula
Area	$A = bh$
Perimeter	$P = 2(a + b)$

Rhombus



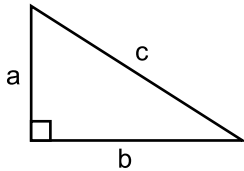
Quantity	Formula
Area	$A = \frac{1}{2}d_1 \times d_2$ $= \frac{1}{2} \times \text{diagonal}_1 \times \text{diagonal}_2$
Perimeter	$P = 4a$

Triangle



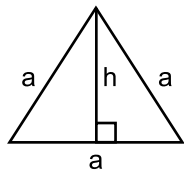
Quantity	Formula
Area	$A = \frac{1}{2} b \times h$
Perimeter	$a + b + c$

Right Triangle



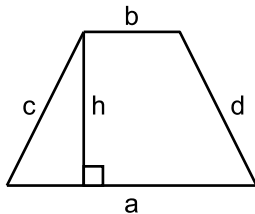
Quantity	Formula
Area	$A = \frac{1}{2} ab$
Perimeter	$a + b + c$
Hypotenuse	$c = \sqrt{a^2 + b^2}$

Equilateral Triangle



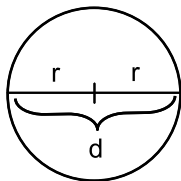
Quantity	Formula
Area	$A = \frac{\sqrt{3}}{4} a^2$
Perimeter	$P = 3a$
Height	$h = \frac{\sqrt{3}}{2} a$

Trapezoid



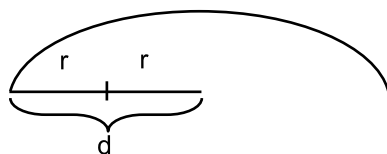
Quantity	Formula
Area	$A = \frac{1}{2} h(a+b)$
Perimeter	$P = a + b + c + d$

Circle



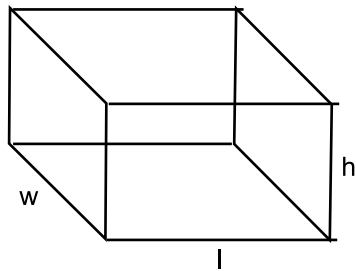
Quantity	Formula
Area	$A = \pi r^2$
Circumference	$C = \pi d = 2\pi r$

Semicircle



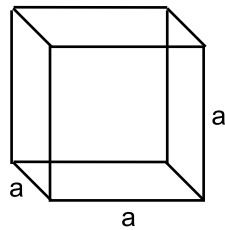
Quantity	Formula
Area	$A = \frac{1}{2} \pi r^2$
Perimeter	$P = d\left(\frac{1}{2} \pi + 1\right)$

Rectangular Solid



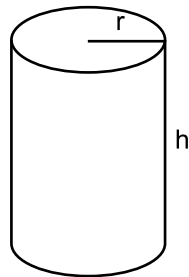
Quantity	Formula
Volume	$V = lwh$
	$V = Bh$
Surface Area	$SA = 2(wh + hl + lw)$
Longest Diagonal	$d = \sqrt{a^2 + b^2 + c^2}$

Cube



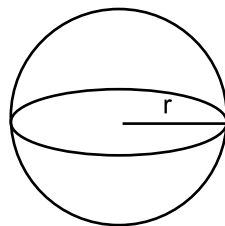
Quantity	Formula
Surface Area	$SA = 6a^2$
Volume	$V = a^3$
Short Diagonal	$d_s = a\sqrt{2}$
Longest Diagonal	$d_l = a\sqrt{3}$

Cylinder



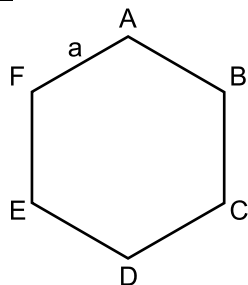
Quantity	Formula
Volume	$V = Bh$
	$V = \pi r^2 h$
Surface Area	$S_1 = 2\pi r h$ (without bases)
	$S_2 = 2\pi r(h + r)$ (with bases)

Sphere



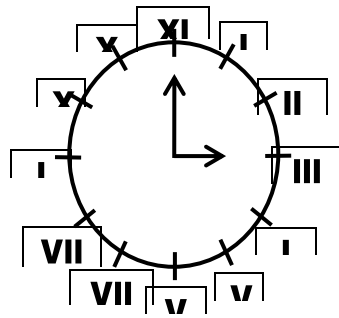
Quantity	Formula
Volume	$V = \frac{4}{3} \pi r^3$
Surface Area	$S = 4\pi r^2$

Regular Hexagon



Quantity	Formula
Each Angle (equal)	$180^\circ \times (6-2) / 6 = 120^\circ$
Area	$A = \frac{3\sqrt{3}}{2} a^2$

CLOCK-RELATED PROBLEMS



In any clock, the angle at the center is 360° portion

Every hour segment measures $\frac{360}{12}$, or 30° and every minute segment measures $\frac{30}{5}$, or 6° .

As the minute hand revolves one minute segment (6°) in one minute, it revolves 6° per minute.

As the hour hand revolves 1 hour segment (30°) in 60 minutes (1 hour), it revolves $\frac{30}{60}$, or $\frac{1}{2}^\circ$, or 0.5° per minute.

ROTATION OF WHEEL

This type of problem deals with the distance travelled by a wheel or any circular disk. One revolution of a wheel will make it move a distance equal to its circumference. The circumference of a circle is the total distance around its outside. Circumference equals the diameter of the circle multiplied by π (π), which is about 3.14 or $\frac{22}{7}$. And the unit of travelled distance is the same as the unit of the radius or diameter of the wheel.

Circumference = πd , or $2\pi r$ [Where, r = radius of the wheel & d = diameter of the wheel]

If two wheels of different radius travel the same distance in the same time, i.e. their speeds remain same, then-

$$n_1 r_1 = n_2 r_2$$

Here,

n_1 = Number of revolutions of the 1st wheel

n_2 = Number of revolutions of the 2nd wheel

r_1 = Radius of the 1st wheel

r_2 = Radius of the 2nd wheel

Example: If a circle has a radius of 7 inches, how much distance does it travel in 10 revolutions?

Solution: In 1 revolution it travels = $2\pi r = 2 \times \frac{22}{7} \times 7 = 44$ inches.

So in 10 revolutions it travels $44 \times 10 = 440$ inches.

Name.....

Review Test on Lecture 6

Batch.....

10 marks, 10 minutes

- The average age of 6 children and their mother, Trisha is 12 years. It is reduced by five years if the mother is excluded. How old is the mother?
a. 60 years b. 37 years c. 55 years d. 65 years e. None of these
- A woman was thirty years old when her daughter was born. Her age is now 6 years more than three times her daughter's age. How old will be the daughter in 5 years?
a. 19 b. 18 c. 17 d. 15 e. None of these
- If a man earns Tk. 2000 for his first 40 hours of work in a week and then is paid one-and-one-half times his regular hourly rate for any additional hours, how many hours must he work to make Tk. 2300 in a week?
a. 4 b. 5 c. 6 d. 44 e. 45
- A man can purchase either 4 horses and 3 dogs or 3 horses and 6 dogs for Tk. 21,000. How much does each dog cost in taka?
a. 1,400 b. 2,800 c. 1,090 d. 1,100 e. 4,200
- In Mr. Sadat's class there are 60 students, 40 understand Izma, 35 understand Qiyas and 20 understand both. How many of the students neither understand Izma nor Qiyas?
a. 5 b. 10 c. 15 d. 55 e. None
- What is the probability that a word formed by randomly arranging the letters of the word SPEAK is the word SPEAK itself?
a. 1 b. $\frac{1}{30}$ c. $\frac{1}{60}$ d. $\frac{1}{120}$ e. $\frac{1}{5}$
- A menu offers 2 appetizers, 4 main courses, and 3 desserts. A dinner must contain an appetizer, a main course, and a dessert. How many different combinations of dinner can be made?
a. 9 b. 5 c. 6 d. 12 e. 24
- From 6 boys and 4 girls, 5 are to be selected for a committee. In how many ways can this be done if there must be exactly 2 girls?
a. 30 b. 60 c. 90 d. 120 e. None of these
- A two-digit number is written at random. Determine the probability that the number will be a prime number.
a. $\frac{1}{12}$ b. $\frac{1}{3}$ c. $\frac{4}{9}$ d. $\frac{1}{4}$ e. $\frac{7}{30}$
- Machine A produces bolts at a uniform rate of 120 every 40 seconds, and machine B produces bolts at the rate of 100 every 20 seconds. If the two machines run simultaneously, how many seconds will it take them to produce a total of 200 bolts?
a. 22 b. 25 c. 28 d. 32 e. 56

Answer Sheet

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-

SCORE.....

REMARKS.....