Geometry Final Exam Review Worksheet

(1) Find the area of an equilateral triangle if each side is 8.

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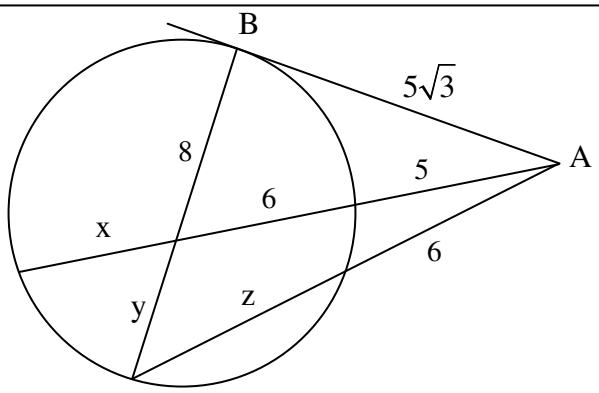
(2) Given the figure to the right, $\overline{AB}$ is tangent at B, sides as marked, find the values of x , y , and z please.



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(3) Find the length of the arc of a sector of 54° in a circle if the radius is 10. Find the area of the sector.

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(4) The apothem of a regular hexagon is $10\sqrt{3}$. Find the length of each side of the hexagon. Find the area of the hexagon.

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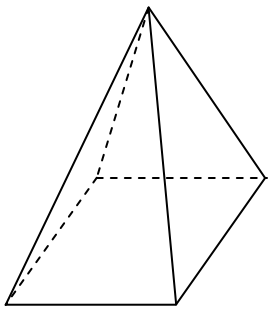
(5) The altitude of a regular pyramid with a square base is 12, and the slant height is 13. Find the volume, LSA and TSA of the pyramid please.



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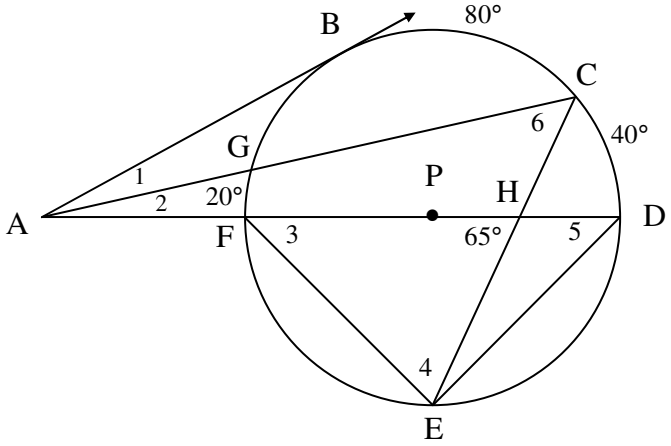
(6) Given the figure to the right,
$\overrightarrow{AB}$ is tangent to the circle at B.
$\overline{FD}$ is a diameter, with measures as marked.
Find:

$m\overset{\frown}{BG}$, $m\overset{\frown}{EF}$, $m\overset{\frown}{DE}$, $m\angle 1$,

$m\angle 2$, $m\angle 3$, $m\angle 4$, $m\angle 5$, $m\angle 6$



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(7) The areas of two similar triangles are 144 and 256. If a side of the smaller triangle is 9, how long is the corresponding side of the larger triangle?

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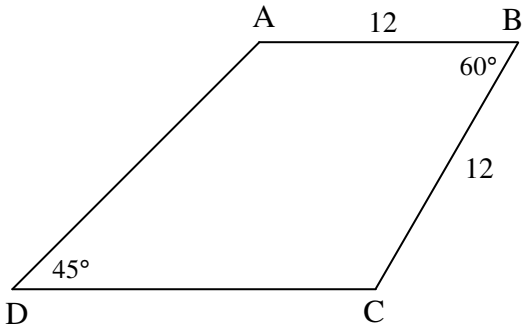
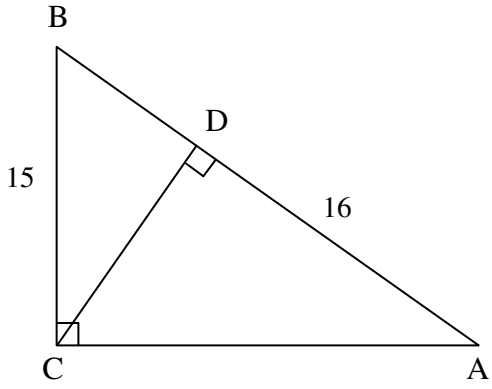
(8) Given the figure below, $\square ABCD$ is a trapezoid with $\overline{AB} \parallel \overline{CD}$ and sides and angles as marked. Find the area and perimeter of $\square ABCD$.



(9) Given the figure below, $\overline{BC} \perp \overline{AC}$, $\overline{CD} \perp \overline{AB}$, and sides as marked. **Find:** CD, BD and the area of $\triangle ABC$



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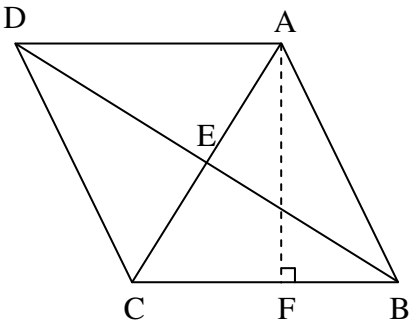
(10) Given the figure to the right, $\square ABCD$ is a rhombus, with $\overline{AF} \perp \overline{BC}$. AC = 10, BD = 24.
Find:

BC, area $\square ABCD$, AF



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(11) In a circle whose radius is 6, the area of a sector is 15π. Find the measure of the central angle of the sector and the length of the arc of the sector please.

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(12) Each side of an equilateral triangle is 12. Find the area of its inscribed and circumscribed circles.

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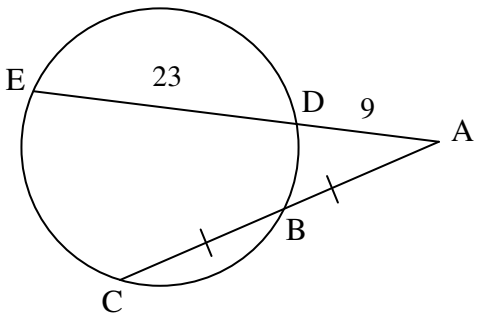
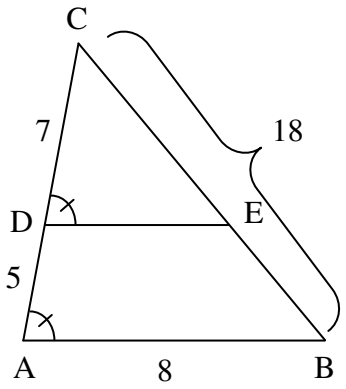
(13) Given the figure below, AD = 9, DE = 23, AB = BC. **Find:** AB



(14) Given the figure below with sides and angles as marked. **Find:** DE and BE



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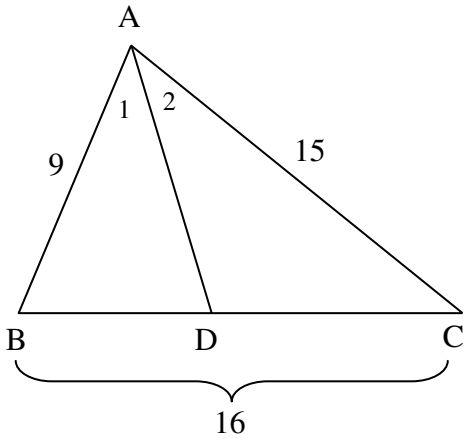
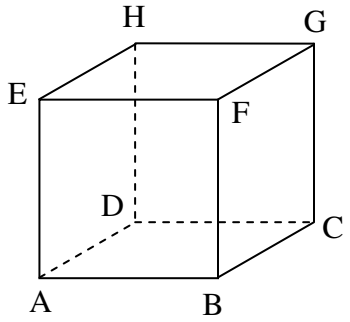
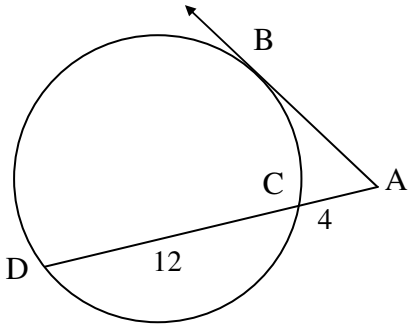
(15) In $\triangle ABC$ below, $m\angle 1 = m\angle 2$, and sides are as marked. **Find:** BD and CD



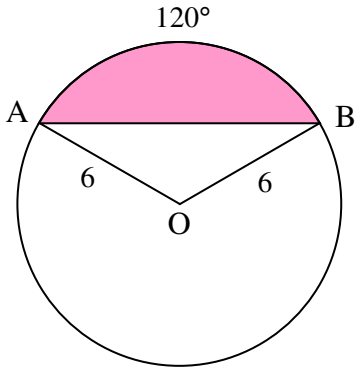
(16) The length of each lateral edge in the cube below is 6. **Find:** the LSA, TSA volume , BD and BH.



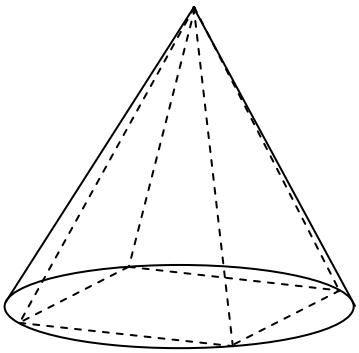
(17) $\overrightarrow{AB}$ is tangent to the circle below. Find AB given sides as marked.



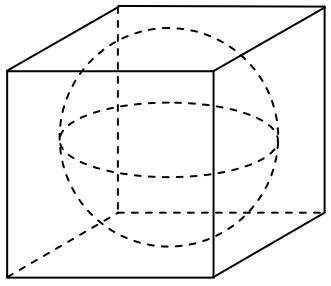
(18) Find the area of the shaded region in the figure below if O is the center of the circle



(19) A square pyramid with base edge 4 is inscribed in a cone with height 6. Find the volume of the pyramid and cone.



(20) Find the volume of a sphere inscribed in a cube if each side of the cube is 6.



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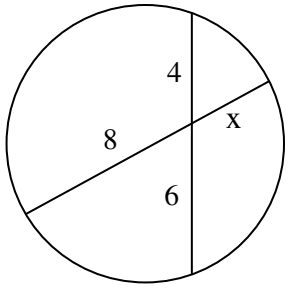
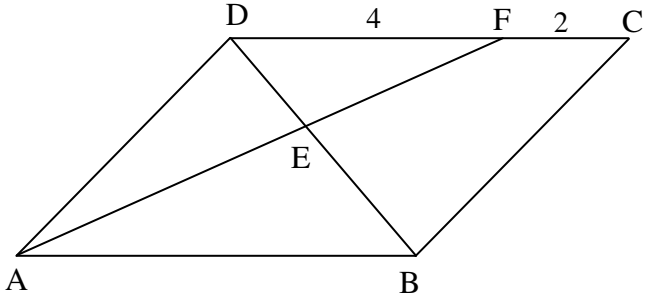
(21) The area of an equilateral triangle is $25\sqrt{3}$. Find the length of its sides and altitudes please.

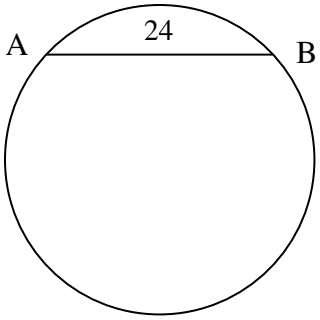
(22) Solve for x in the circle below, given sides as marked.



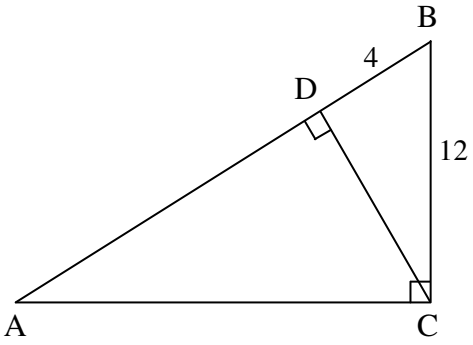
(23) □ABCD is a parallelogram, BD = 5 , DF = 4 , CF = 2.
Find: DE and BE



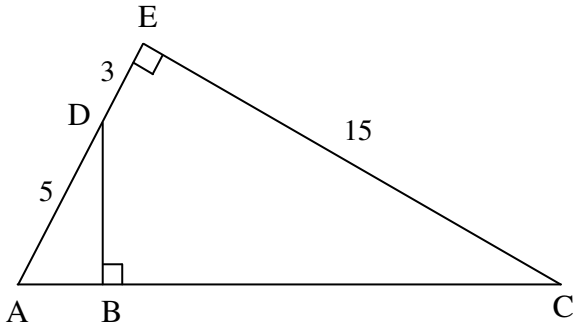
(24) The radius of the circle below is 20. The length of $\overline{AB}$ is 24. How far is $\overline{AB}$ from the center of the circle?



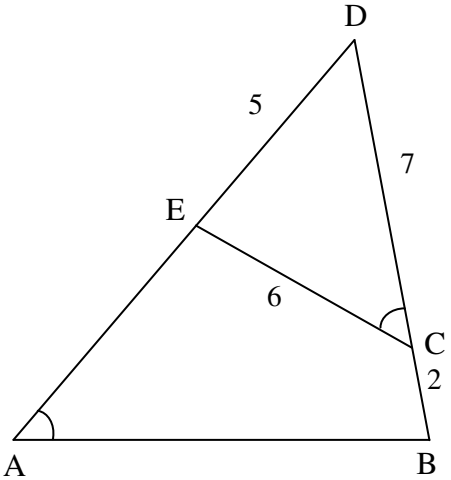
(25) In the figure below, $\overline{AC} \perp \overline{BC}$, $\overline{CD} \perp \overline{AB}$, with sides as marked.
Find: CD , AD , AC



(26) Given the figure below. $\overline{BD} \perp \overline{AC}$, $\overline{AE} \perp \overline{CE}$, with sides as marked.
Find: AB , BC , BD



(27) Given the figure below, with sides and angles as marked, **find:** AE and AB



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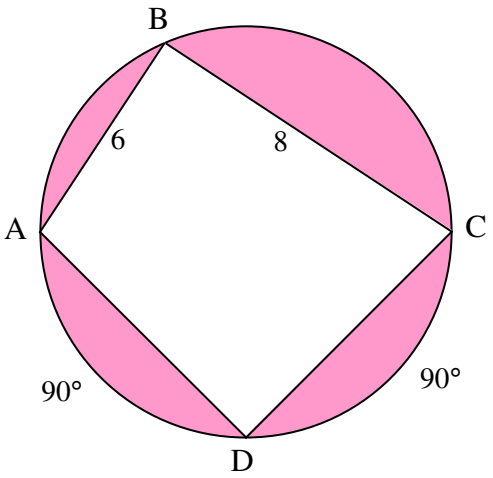
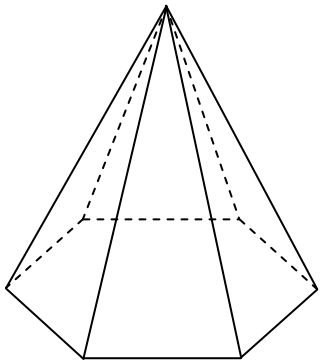
(28) Find the sum of the areas of the shaded regions in the figure below given lengths and arcs as marked.

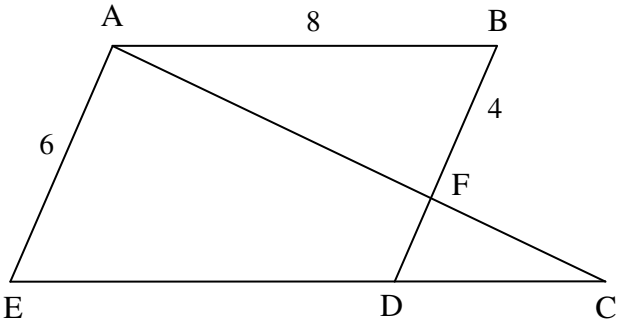


(29) Find the LSA , TSA , and volume of the right regular hexagonal pyramid below if the altitude is $4\sqrt{3}$ and each edge of the base is 6.



(31) $\square ABDE$ is a parallelogram in the figure below, with sides as marked. **Find:**

DE , CD , $\dfrac{a_{\triangle ABF}}{a_{\triangle CDF}}$, $\dfrac{a_{\triangle CDF}}{a_{\square DEAB}}$



(32) ΔABC has vertices A (−5 , 4) , B (1 , −2) and C (3 , 6).

(a) Write the equation of $\overleftrightarrow{AB}$.

(b) Write the equation of the altitude to $\overleftrightarrow{AC}$.

(c) Write the equation of the perpendicular bisector of $\overline{AC}$.

(d) Find the perimeter of ΔABC.

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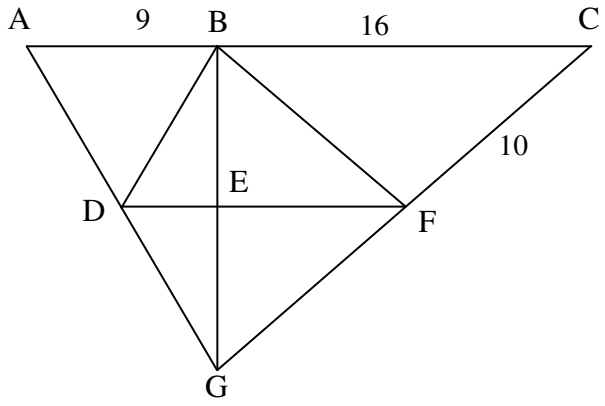
(e) Find the length of the median to $\overline{AB}$.

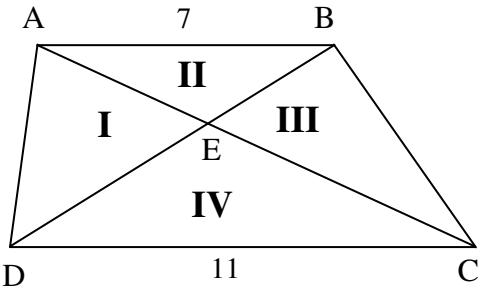
(33)



Given the figure above, $\overline{BG} \perp \overline{AC}$, D and F are midpoints.

Find: AG , BD , BG , EG , EF , BF

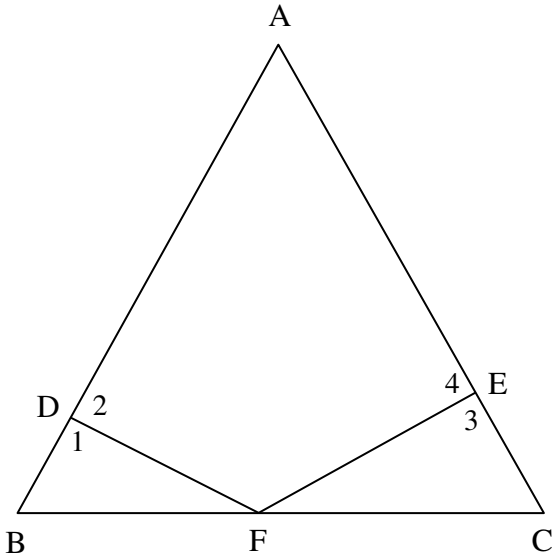
(34)



Given the figure above, $\overline{AB} \parallel \overline{CD}$, sides as marked. Find the ratio of the areas of each of the following.

$$\frac{a\Delta I}{a\Delta II}\ ,\ \frac{a\Delta I}{a\Delta III}\ ,\ \frac{a\Delta II}{a\Delta IV}\ ,\ \frac{a\Delta II}{a\square ABCD}$$

(35)



Given: $AB = AC$, $\overline{DF} \perp \overline{AB}$, $\overline{EF} \perp \overline{AC}$

Prove: $BD \bullet EF = CE \bullet DF$

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Answers

(1) $16\sqrt{3}$

(2) $x = 4$, $y = 3$, $z = \frac{13}{2}$

(3) Length of arc is 3π , area of sector is 15π

(4) Each side is 20 , area of the hexagon is $600\sqrt{3}$

(5) Volume is 400 , LSA is 260 , TSA is 360

(6) $m\overset{\frown}{BG} = 40^\circ$, $m\overset{\frown}{EF} = 90^\circ$, $m\overset{\frown}{DE} = 90^\circ$, $m\angle 1 = 20^\circ$,

$m\angle 2 = 10^\circ$, $m\angle 3 = 45^\circ$, $m\angle 4 = 70^\circ$, $m\angle 5 = 45^\circ$, $m\angle 6 = 55^\circ$

(7) 12

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Answers

(8) Area = $54\sqrt{3} + 54$, perimeter = $30 + 6\sqrt{6} + 6\sqrt{3}$

(9) CD = 12 , BD = 9 , area = 150

(10) BC = 13 , area $\square ABCD = 120$, AF = $\frac{120}{13}$

(11) Central angle is 150° , arc length of the sector is 5π

(12) Area inscribed circle is 12π , area circumscribed circle is 48π

(13) AB = 12

(14) DE = $\frac{14}{3}$, BE = $\frac{15}{2}$

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Answers

(15) BD = 6 , CD = 10

(16) LSA = 144 , TSA = 216 , Volume = 216 , BD = $6\sqrt{2}$, BH = $6\sqrt{3}$

(17) AB = 8

(18) $12\pi - 9\sqrt{3}$

(19) Volume pyramid = 32 , volume cone = 16π

(20) 36π

(21) side = 10 , altitude = $5\sqrt{3}$

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Answers

(22) $x = 3$

(23) $DE = 2$, $BE = 3$

(24) 16

(25) $CD = 8\sqrt{2}$, $AD = 32$, $AC = 24\sqrt{2}$

(26) $AB = \frac{40}{17}$, $BC = \frac{249}{17}$, $BD = \frac{75}{17}$

(27) $AE = \frac{38}{5}$, $AB = \frac{54}{5}$

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Answers

(28) $25\pi - 49$

(29) LSA = $90\sqrt{3}$, TSA = $144\sqrt{3}$, Volume = 216

(30) area = $48\pi + 18\sqrt{3}$, perimeter = 16π

(31) DE = 8 , CD = 4 , $\frac{a_{\triangle}ABF}{a_{\triangle}CDF} = \frac{4}{1}$, $\frac{a_{\triangle}CDF}{a_{\square}DEAB} = \frac{1}{12}$

(32) **(a)** $y = -x - 1$

(b) $y = -4x + 2$

(c) $y = -4x + 1$

(d) $4\sqrt{17} + 6\sqrt{2}$

(e) $5\sqrt{2}$

Answers

(33) AG = 15 , BD = $\frac{15}{2}$, BG = 12 , EG = 6 , EF = 8 , BF = 10

(34) $\frac{a\Delta I}{a\Delta II} = \frac{11}{7}$, $\frac{a\Delta I}{a\Delta III} = \frac{1}{1}$, $\frac{a\Delta II}{a\Delta IV} = \frac{49}{121}$, $\frac{a\Delta II}{a\square ABCD} = \frac{49}{324}$