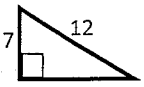
Name: Hansen Key 2014

Geometry C Exam Review

Chapter 10: Area

1. Find the area of each triangle.

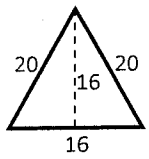
a. $A = \frac{b \times h}{2}$



$b = 10$
$h = 7$

35

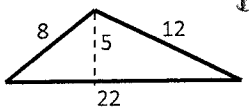
b.



$b = 16$
$h = 16$

128

c.

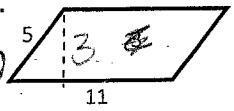


$b = 22$
$h = 5$

55

2. Find the area of each parallelogram.

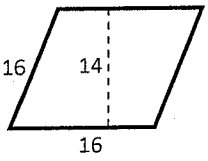
a. $A = b \times h$



$b = 11$
$h = 3$

33

b.



$b = 16$
$h = 14$

224

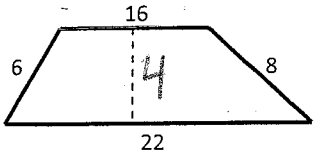
c.

$b = 17$
$h = 7$

119

3. Find the area of each trapezoid.

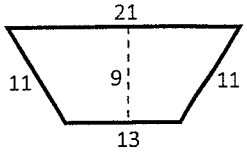
a.



$b_1 = 16$
$b_2 = 22$
$h = 4$

$A = \frac{(b_1 + b_2)h}{2}$ 76

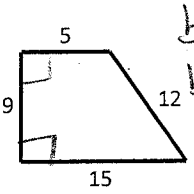
b.



$b_1 = 21$
$b_2 = 13$
$h = 9$

153

c.

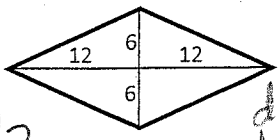


$b_1 = 5$
$b_2 = 15$
$h = 9$

90

4. Find the area of each rhombus.

a.

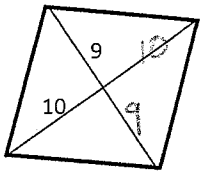


$A = \frac{d_1 d_2}{2}$

$d_1 = 24$
$d_2 = 12$

144

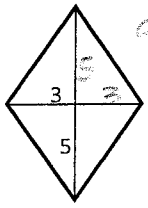
b.



$d_1 = 18$
$d_2 = 20$

180

c.

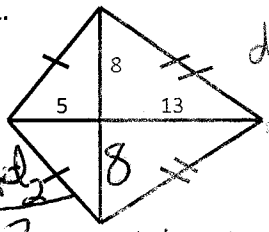


$d_1 = 10$
$d_2 = 6$

30

5. Find the area of each kite.

a.



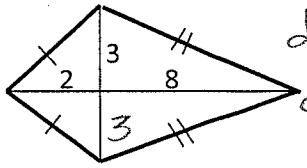
$d_1 = 16$

$d_2 = 18$

$A = \frac{d_1 d_2}{2}$

144

b.

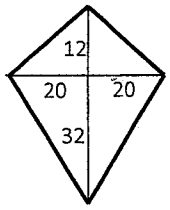


$d_1 = 6$

$d_2 = 10$

30

c.



$d_1 = 44$

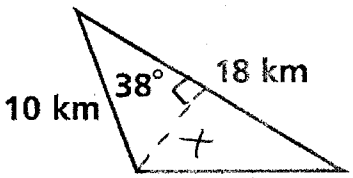
$d_2 = 40$

880

6. Find the area of each triangle.

$A = \frac{pq\sin\theta}{2}$

a.



$p = 10$

$q = 18$

$\theta = 38$

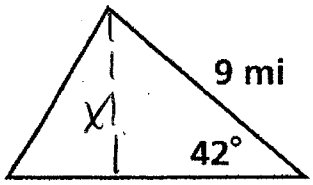
$\sin 38 = \frac{x}{10}$

$x = 6.2$

$A = \frac{18 * 6.2}{2}$

55.8 km²

b.



$p = 9$

$q = 10$

$\theta = 42$

$\sin 42 = \frac{x}{9}$

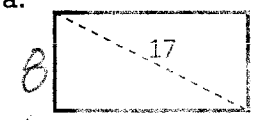
$x = 6.02$

$A = \frac{10 * 6.02}{2}$

30.1 mi²

7. Find the area of each figure.

a.



$h^2 + 15^2 = 17^2$

$h = 8$

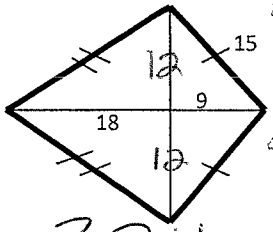
$A = bxh$

$b = 8$

$h = 15$

120

b.



$9^2 + b^2 = 15^2$

$b = 12$

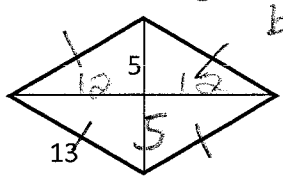
$d_1 = 24$

$d_2 = 27$

$A = \frac{d_1 d_2}{2}$

324

c.



$5^2 + b^2 = 13^2$

$b = 12$

$A = \frac{d_1 d_2}{2}$

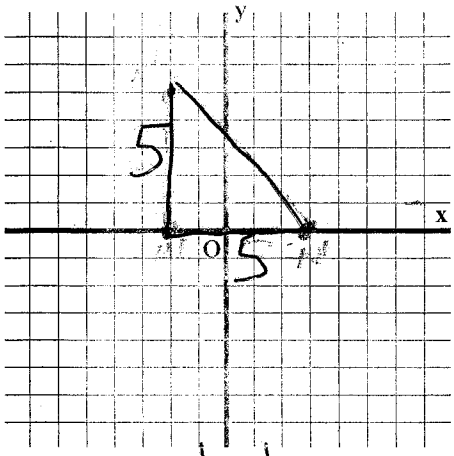
$d_1 = 24$

$d_2 = 10$

120

8. Graph each quadrilateral, then find the area of the figure.

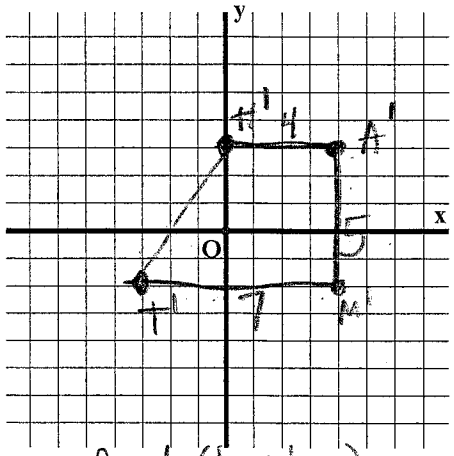
a. M(-2,0), A(-2,5), N(3,0)



$A = \frac{b \times h}{2}$

12.5

b. M(4,-2),A(4,3),T(-3,-2),H(0,3)



$A = h(b_1 + b_2)$

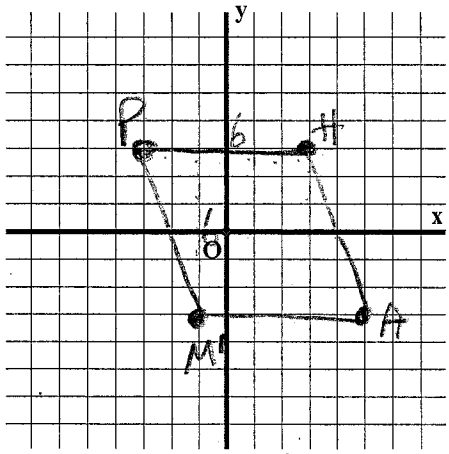
$h = 5$

$b_1 = 4$

$b_2 = 7$

27.5

c. A(5,-3),H(3,3),M(-1,-3),P(-3,3)



$A = b \times h$

$b = 6$

$h = 6$

36

9. Find the central angle of each of the following regular polygons. $\frac{360}{n}$ ← # of sides

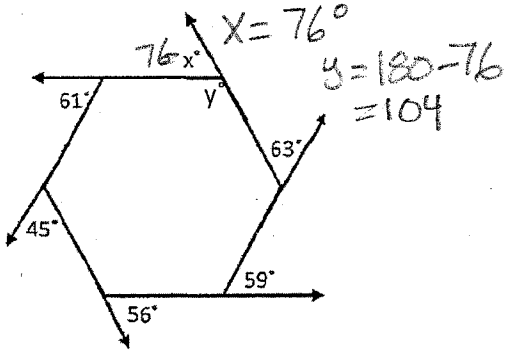
a. **Pentagon** $\frac{360}{5}=72^\circ$ b. **Hexagon** $\frac{360}{6}=60^\circ$ c. **Heptagon** $\frac{360}{7}=51.4^\circ$

10. Find the interior angle sum of the following polygons. $(n-2)180$ ← # of sides

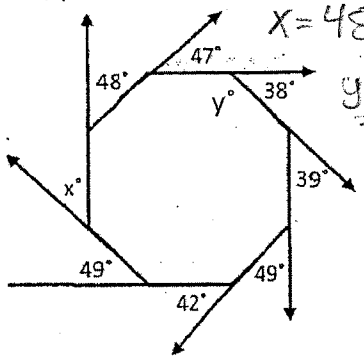
a. **Pentagon** $(5-2)180=540$ b. **Hexagon** $(6-2)180=720$ c. **Heptagon** $(7-2)180=900^\circ$

11. Find measure of the exterior angle and interior angle. Ext. Sum = 360

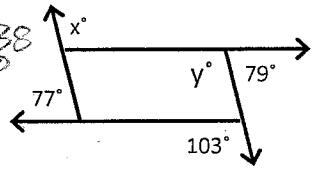
a. $x+284=360$, $x=76^\circ$, $y=180-76=104$



b. $x+312=360$, $x=48$, $y=180-38=142^\circ$



c.

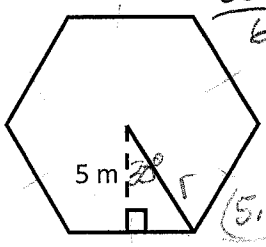


$x+259=360$, $x=101^\circ$, $y+79=180$, $y=101^\circ$

x = 76° **y =** 104° **x =** 48° **y =** 142° **x =** 101° **y =** 101°

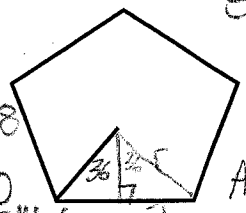
12. Find the area of each regular polygon.

a. $\frac{360}{6}=60^\circ$, $\cos 30=\frac{5}{r}$, $r=\frac{5}{\cos 30}=5.8$, $\frac{(5.8)(5.8)\sin 60}{2}=14.6$, $6(14.6)=87.6$



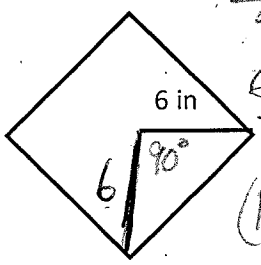
$87.6\,m^2$

b. $\frac{360}{5}=72$, $\sin 36=\frac{2}{r}$, $r=3.4$, $A=\frac{(3.4)(3.4)\sin 72}{2}$, $A=5.5$, $(5.5)5=27.5$



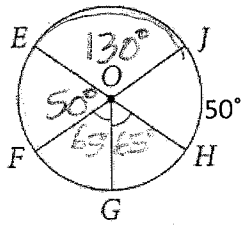
$27.5\,cm^2$

c. $\frac{360}{4}=90^\circ$, $\frac{6(6)\sin 90}{2}=18$, $(18)4=72$

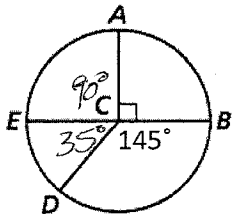


$72\,in^2$

13. Find the angle measure of the indicated arc in each circle.



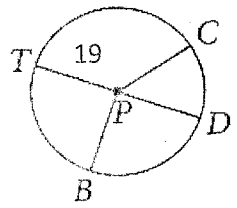
$\overset{\frown}{EJ}=130^\circ$ arc JFG=245° arc JG=115° arc HFG=295°



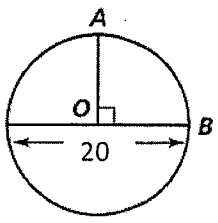
arc EA=90° arc BDA=270° arc BAD=215° arc EBD=325°

14. Find the circumference and area of each circle.

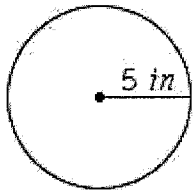
a.



b. $r = 19$



c. $r = \frac{20}{2} = 10$



$r = 5$

$C = 2\pi r$ Circumference = 38π

$A = \pi r^2$ Area = 361π

Circumference = 20π

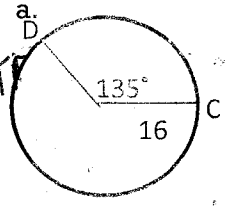
Area = 100π

Circumference = 10π

Area = 25π

15. Find the indicated arc length.

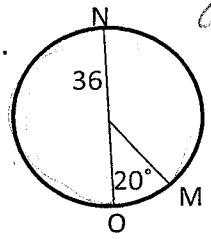
a.



$\frac{\text{arc}^\circ}{360} \cdot 2\pi r$ $r = 16$

arc CD= 12π

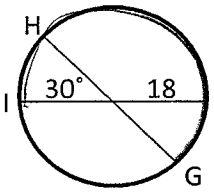
b.



arc = 340° $r = 36$

arc MNO= 68π

c.

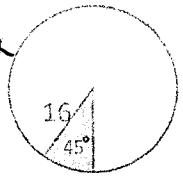


arc = 210° $r = 18$

arc GHI= 21π

16. Find the area of the shaded sector.

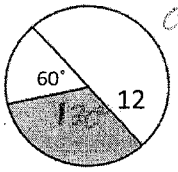
a.



$\frac{\text{arc}^\circ}{360} \cdot \pi r^2$ arc = 45° $r = 16$

Area = 32π

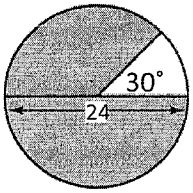
b.



arc = 120° $r = 12$

Area = 48π

c.



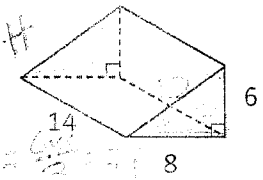
arc = 330° $r = 12$

Area = 132π

Chapter 11: Surface Area & Volume

17. Find the surface area and volume of each prism or cylinder.

a.



$SA = 2B + PH$

$A_B = \frac{1}{2} \cdot 14 \cdot 8 = 56$

$P = 14 + 10 + 8 = 32$

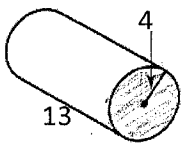
$V = 56 \cdot 6 = 336$

Surface Area = 384

Volume = 336

$V = A_B \times H$

b.



$SA = 2\pi r^2 + 2\pi r H$

$r = 4$

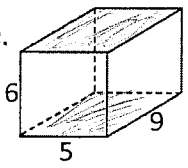
$H = 13$

Surface Area = 136π

Volume = 208π

$V = \pi r^2 \times H$

c.



$A_{OB} = 5 \times 9 = 45$

$P = 5 + 9 + 5 + 9 = 28$

$H = 6$

$SA = 2A_{OB} + PH$

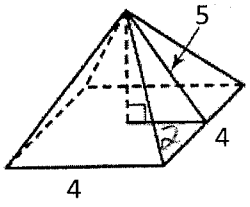
Surface Area = 258

Volume = 270

$V = A_{OB} \times H$

18. Find the surface area and volume of each pyramid or cone.

a.



$SA = AOB + (P\ell)/2$

$AOB = 16$
$P = 16$
$\ell = 5$

Surface Area = 56

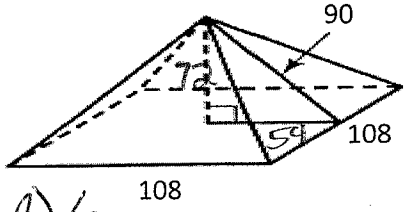
$H = 4.6$

$H^2 + 2^2 = 5^2$
$\sqrt{H^2} = \sqrt{21}$
$H = 4.6$

$V = \frac{AOB \times H}{3}$

Volume = 24.5

b.



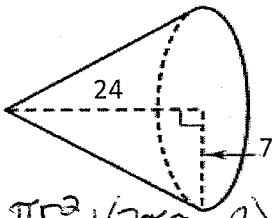
$AOB = 11664$
$P = 432$
$\ell = 90$

Surface Area = 31104

$H^2 + 54^2 = 90^2$
$\sqrt{H^2} = \sqrt{5184}$
$H = 72$

Volume = 279936

c.



$SA = \pi r^2 + (2\pi r \times \ell)/2$

$r = 7$
$L = 25$

$24^2 + 7^2 = \ell^2$
$\sqrt{625} = \sqrt{\ell^2}$
$\ell = 25$

Surface Area = 224π

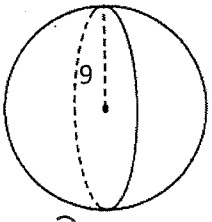
$V = \frac{\pi r^2 \times H}{3}$

$H = 24$

Volume = 392π

19. Find the surface area and volume of each sphere.

a.



$r = 9$

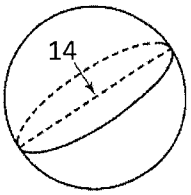
$SA = 4\pi r^2$

Surface Area = 324π

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

Volume = 972π

b.

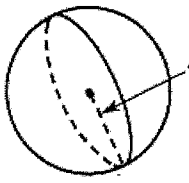


$r = \frac{14}{2} = 7$

Surface Area = 196π

Volume = 457.3π

c.



$r = 4$

Surface Area = 64π

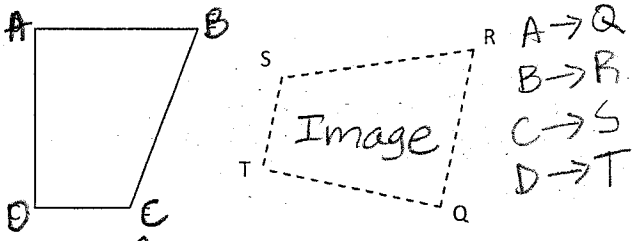
Volume = 85.3π

Chapter 9: Transformations

20. For the figures at right, the dashed figure is the image of the solid figure. Find the image of each vertex or side.

Preimage = A, image = Q Preimage = $\overline{AD}$, image = $\overline{QT}$

Preimage = $\overline{BC}$, image = $\overline{RS}$ Preimage = C, image = S

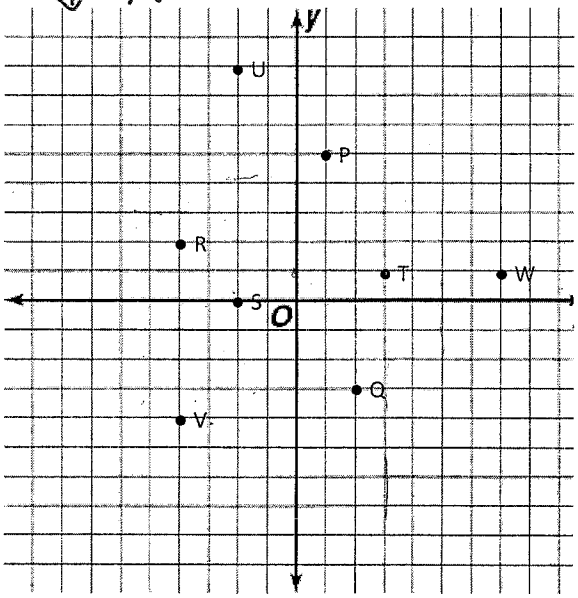


Use the graph at right.

21. Find the coordinates of the image after a reflection: ↔ = y ↕ = x

a. Point P over x = 3 b. Point R over y = 3 c. Point T over the y-axis

(5, 5) (-4, 4) (-3, 1)



22. Find the vector of each translation:

a. P→R b. S→Q c. T→U

⟨-5, -3⟩ ⟨4, -3⟩ ⟨-5, 7⟩

23. What line of reflection maps the first point onto the second?

a. R→V b. T→W c. S→U

y = -1 x = 5 y = 4

24. Dilate:

a. S by SF = 3 b. P by SF = 2 c. V by SF = $\frac{1}{2}$

(-6, 0) (1, 5) (2, 10) (-4, -4) (-2, -2)

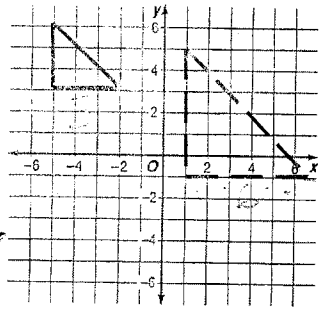
25. Rotate:

a. R 90° b. W 180° c. Q 270°

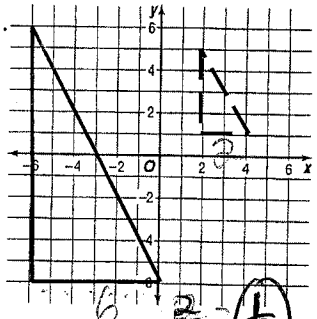
(-2, -4) (7, 1) (-7, -1) (2, -3) (-3, -2)

26. For each set of graphs, the dashed figure is the image of the solid figure. What is the scale factor of the dilation?

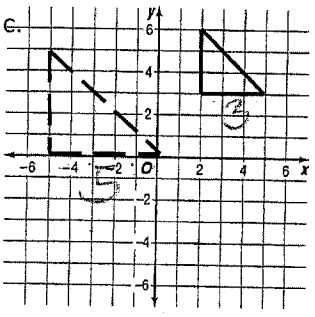
Image / orig

a. 

$\frac{6}{3} = 2$

b. 

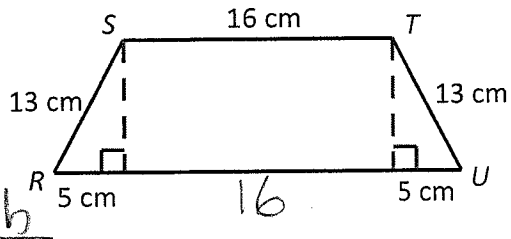
$\frac{2}{6} = \frac{1}{3}$

c. 

5/3

ACT/MME Readiness

27. The figure below shows an isosceles trapezoid. What is its area in square centimeters (cm) ?



$b_1 = 16$

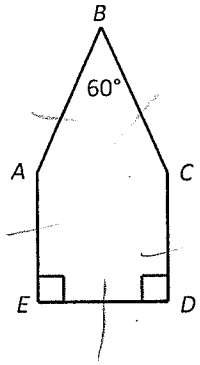
$b_2 = 26$

$h = 12$

$A = \frac{(b_1 + b_2)h}{2}$

A. 338
B. 312
C. 273
D. 252
E. 192

28. What is the sum of the measures of the interior angles of polygon *ABCDE*, shown below ?



$(n-2)180$

$(5-2)180 = 540$

A. 240°
B. 360°
C. 420°
D. 450°
E. 540°

29. The edges of a cube are each 3 inches long. What is the surface area, in square inches, of this cube?

$AoB = 3 \times 3 = 9$

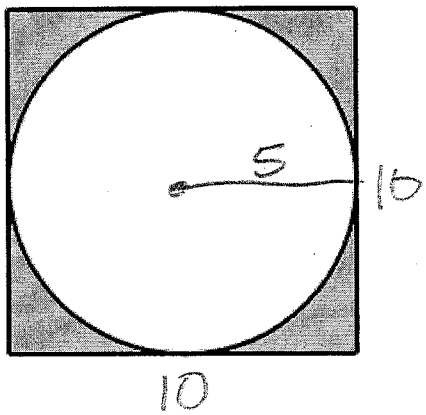
$P = 3+3+3+3 = 12$

$H = 3$

$SA = 2AoB + PH$

A. 9
B. 18
C. 27
D. 36
E. 54

30. A circle is inscribed in a square, as shown in the figure below. If the square measures 10 feet on a side, which of the following expressions gives the area of the shaded region in square feet?



$A_{\square} = 10 \times 10 = 100$

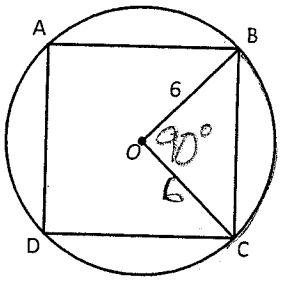
$A_{\circ} = \pi(5)^2 = 25\pi$

$100 - 25\pi$

$10^2 - 5^2\pi$

A. $10^2 - 10\pi$
B. $10^2 - 5^2\pi$
C. $10 - 5\pi$
D. $5^2 - 5^2\pi$
E. $5^2 - 10\pi$

31. In the figure below, *ABCD* is a square inscribed in the circle centered at *O*. If $\overline{OB}$ is 6 units long, how many units long is minor arc *BC* ?



A. $\frac{3}{2}\pi$

B. 3π

C. 6π

D. 12π

E. 36π

$\frac{360}{4} = 90°$

$r = 6$

$\frac{arc}{360} \cdot 2\pi r$

$\frac{90}{360} \cdot 2\pi(6) = 3\pi$