Quarter 3
Midterm Review

If ay - cx + by = dx + fy + kx
find the ratio of x to y.

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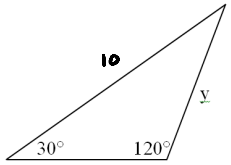
$ay + by - fy = dx + cx + kx$

$\frac{y(a+b-f)}{y(d+c+k)} = \frac{x(d+c+k)}{y(d+c+k)}$

$\frac{x}{y} = \frac{a+b-f}{d+c+k}$

Solve for y.



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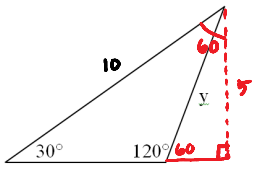

$\frac{x\sqrt{3}}{\sqrt{3}} = \frac{5}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$

$x = \frac{5\sqrt{3}}{3}$

$y = \frac{10\sqrt{3}}{3}$

The centers of two circles with radii of 1 and 10 are 15 units apart. Find the length of the common external tangent.

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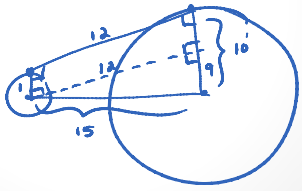

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The centers of two circles with radii 9 cm and 3 cm are 16 cm apart. Find the length of the common internal tangent.

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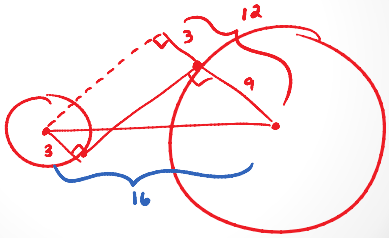
$x^2+12^2=16^2$
$x^2+3^2=4^2$
$x^2+9=16$
$x^2=7$
$x=\sqrt{7}$

$4\sqrt{7}$

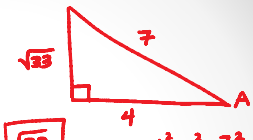


If cos A = $\frac{4}{7}$

What is the tan A = ?

What is the measure of angle A?

If cos A = $\frac{4}{7}$



What is the tan A = ? $\frac{\sqrt{33}}{4}$

$4^2+x^2=7^2$
$16+x^2=49$
$x^2=33$
$x=\sqrt{33}$

What is the measure of angle A?

$\cos^{-1}(\cos A)=\cos^{-1}\left(\frac{4}{7}\right)$

$A=\cos^{-1}\left(\frac{4}{7}\right)$

$A=55.2^\circ$

Calculate the mean proportional(s) between 32 and 48.

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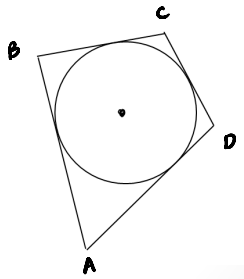
$\frac{32}{x} = \frac{x}{48}$

$x^2 = 1536$

$x = \sqrt{256 \cdot 6}$

$x = \pm 16\sqrt{6}$

Given: ⊙O is inscribed in quadrilateral ABCD.
AB = 15
CB = 12
AD = 31
Find CD.



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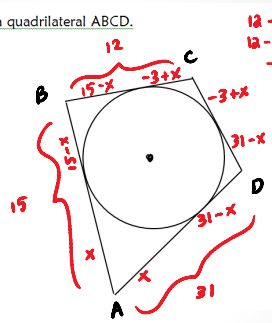

12 -(15-x)
12-15+x
-3+x

-3+x+31-x

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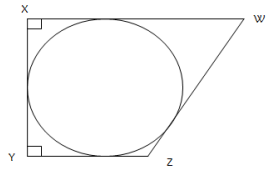
Given : XW = 16
YZ = 7
All side of WXYZ are tan to circle

Find : The Perimeter of WXYZ



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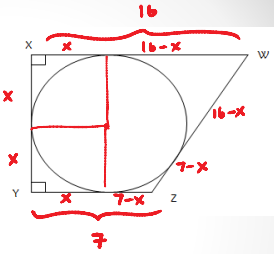

2x+16+7+7-x+16-x

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Ms. Holton is running around Hinsdale and doesn't know where she is going! First she bikes 5 miles South, then 3 miles East, 2 miles North, 1 mile West, then finally 4 miles South. How far is she from the where she started?

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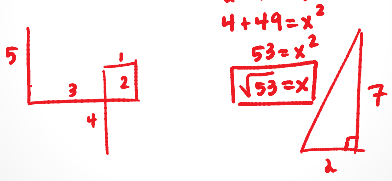
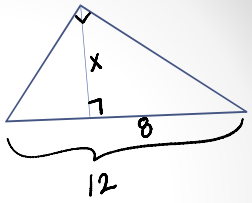


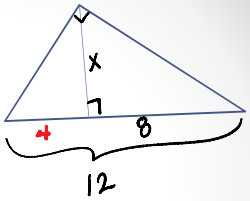
$2^2+7^2=x^2$
$4+49=x^2$
$53=x^2$
$\sqrt{53}=x$

Solve for x:



A. $6\sqrt{2}$
B. $4\sqrt{2}$
C. $4\sqrt{3}$
D. $2\sqrt{10}$

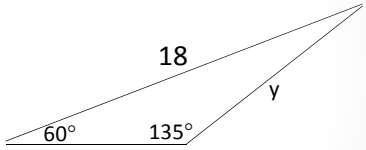
Solve for x:



A. $6\sqrt{2}$
B. $4\sqrt{2}$
C. $4\sqrt{3}$
D. $2\sqrt{10}$

$x^2=4\cdot8$
$x^2=32$
$x=\sqrt{16\cdot2}$
$x=4\sqrt{2}$

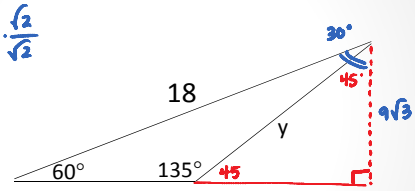
Solve for y:



Solve for y:

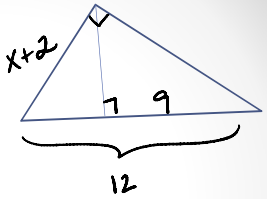
$\frac{x\sqrt{2}}{\sqrt{2}}=\frac{9\sqrt{3}}{\sqrt{2}}\cdot\frac{\sqrt{2}}{\sqrt{2}}$

$x=\frac{9\sqrt{6}}{2}$



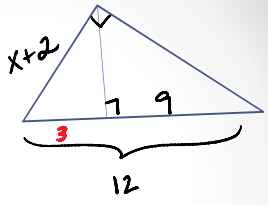
$y=\frac{18\sqrt{6}}{2}=9\sqrt{6}$

Solve for x:



A. 6
B. -8
C. 4
D. 4, -8

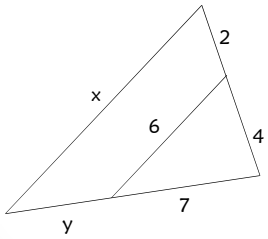
Solve for x:



A. 6
B. -8
C. 4
D. 4, -8

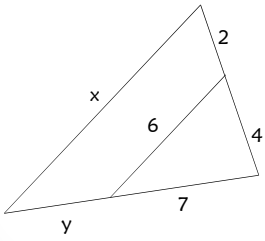
$(x+2)^2 = 3 \cdot 12$
$x^2+4x+4 = 36$
$x^2+4x-32 = 0$
$(x+8)(x-4) = 0$
$x = -8, 4$

Solve for x and y:



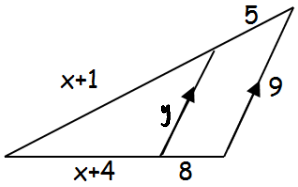
Solve for x and y:

$\frac{4}{2} = \frac{7}{y}$
$4y = 14$
$y = \frac{7}{2}$

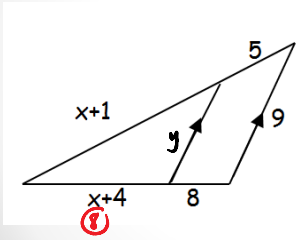


$\frac{4}{6} = \frac{6}{x}$
$4x = 36$
$x = 9$

Solve for x and y:



Solve for x and y:



$\frac{x+1}{9} = \frac{x+4}{8}$
$8(x+1) = 9(x+4)$
$8x+8 = 9x+36$
$3x = 12$
$x = 4$

$\frac{8}{16} = \frac{4}{y}$
$16y = 72$
$y = 4.5$

Find the distance between (-2, 9) and (3, -14).

Find the distance between (-2, 9) and (3, -14).

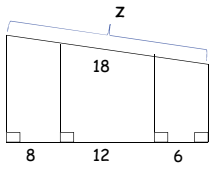
$d = \sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$

$d = \sqrt{(3+2)^2+(-9+14)^2}$

$d = \sqrt{(5)^2+(23)^2}$

$d = \sqrt{554}$

Find z



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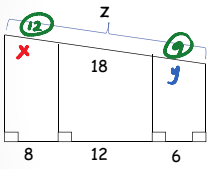


$\frac{12}{18} = \frac{8}{x}$

$\frac{2}{3} = \frac{8}{x}$

$2x = 24$

$x = 12$

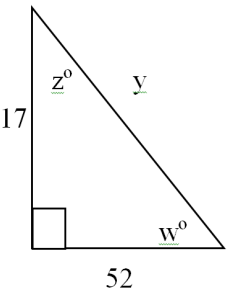
$\frac{2}{3} = \frac{6}{y}$

$2y = 18$

$y = 9$

$z = 12 + 18 + 9 = 39$

Find missing w, y and z.



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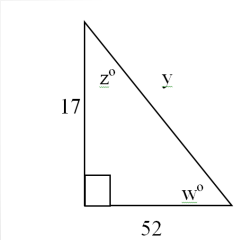

$\tan w = \frac{17}{52}$

$w = \tan^{-1}\left(\frac{17}{52}\right)$

$w \approx 18.1°$

$\tan z = \frac{52}{17}$

$z = \tan^{-1}\left(\frac{52}{17}\right)$

$z = 71.9°$

$17^2 + 52^2 = y^2$

$2993 = y^2$

$\sqrt{2993} = y$

$y \approx 54.7$