Geometry
Worksheet 9.1-9.4

Name Key
Period

Simplify.

1. $\sqrt{96}$

$\sqrt{16}\sqrt{6}$

$4\sqrt{6}$

2. $\sqrt{\frac{7}{3}} = \frac{\sqrt{7}}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$

$= \frac{\sqrt{7}\sqrt{3}}{3} = \frac{\sqrt{21}}{3}$

3. $5\sqrt{20}$

$5\sqrt{4}\sqrt{5}$

$5 \cdot 2\sqrt{5}$

$10\sqrt{5}$

4. $\sqrt{18}+\sqrt{32}+\sqrt{48}$

$\sqrt{9}\sqrt{2}+\sqrt{16}\sqrt{2}+\sqrt{16}\sqrt{3}$

$3\sqrt{2}+4\sqrt{2}+4\sqrt{3}$

$7\sqrt{2}+4\sqrt{3}$

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

6. $\sqrt{5^2+7^2}$

$\sqrt{25+49}$

$\sqrt{74}$

Solve for x.

7. $\sqrt{x^2} = \sqrt{\frac{1}{4}}$

$x = \pm\sqrt{\frac{1}{4}} = \pm\frac{\sqrt{1}}{\sqrt{4}} = \pm\frac{1}{2}$

8. $x^2 - 18 - 3x = 0$

$(x-6)(x+3) = 0$

$x = 6, -3$

m: -3, 6 | a: -18, $-6+3$

9. $x^2 - 6x = 4x$

$-4x \quad -4x$

$x^2 - 10x = 0$

$x(x-10) = 0$

$x = 0, x = 10$

10. Find the area.

$A = \pi r^2$

$A = \pi 6^2$

36π

11. Find the circumference.

$C = 2\pi r$

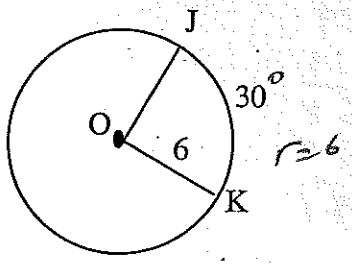
$= 2\pi 6$

12π

12. Find the length of the arc JK.

$30°$ out of $360° = \frac{30}{360} = \frac{1}{12}$ of the circle

so arc $JK = \frac{1}{12}(12\pi) = \pi$



13. Find the area of the sector.

$\frac{1}{12}$ of circle

$A_{sector} = \frac{1}{12}(36\pi) = \frac{36\pi}{12} = 3\pi$

14. If AD = 3 and DB = 9, find CD and AC. Make a new figure for each part.

$x^2 = 3 \cdot 9$

$x^2 = 27$

$x = \sqrt{27}$

$x = \sqrt{9}\sqrt{3}$

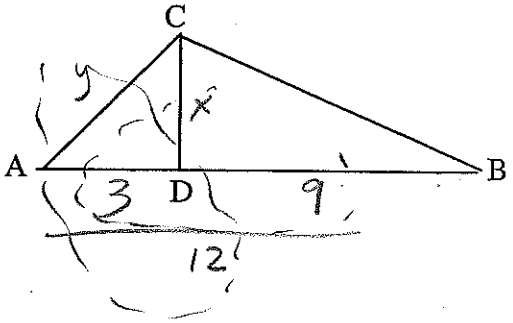
$CD = x = 3\sqrt{3}$

$y^2 = 3 \cdot 12$

$y^2 = 36$

$y = \sqrt{36}$

$y = AC = 6$



15. $\angle ACB$ is a right angle and $\overline{CD} \perp \overline{AB}$. Make a new figure for each part.

a. If AD = 7 and BD = 4, find CD.

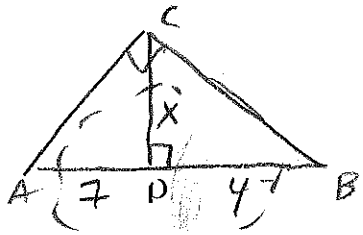
$x^2 = 7(4)$

$x^2 = 28$

$x = \sqrt{28}$

$x = \sqrt{4}\sqrt{7}$

$\boxed{x = 2\sqrt{7}}$



b. If CD = 8 and DB = 6, find CB.

Use Pythagorean thm:

$6^2 + 8^2 = x^2$

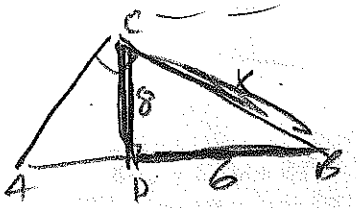
$36 + 64 = x^2$

$100 = x^2$

$x^2 = 100$

$x = \sqrt{100}$

$\boxed{x = 10}$

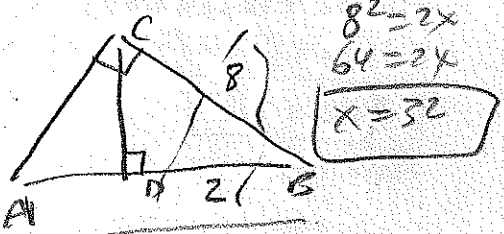


c. If BC = 8 and BD = 2, find AB.

$x^2 = 2x$

$64 = 2x$

$\boxed{x = 32}$



d. If AC = 21 and AB = 29, find CB.

Use Pythagorean thm:

$21^2 + x^2 = 29^2$

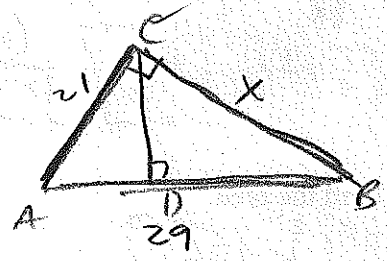
$441 + x^2 = 841$

$-441 \quad -441$

$x^2 = 400$

$x = \sqrt{400}$

$\boxed{x = 20}$



21
×21
21
420
441

29
×29
261
580
841

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Period_____

Simplify.

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2. $\sqrt{\frac{7}{3}}$

3. $5\sqrt{20}$

4. $\sqrt{18}+\sqrt{32}+\sqrt{48}$

5. $\frac{5}{\sqrt{3}}$

6. $\sqrt{5^2+7^2}$

Solve for x.

7. $x^2=\frac{1}{4}$

8. $x^2-18-3x=0$

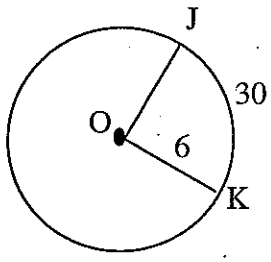
9. $x^2-6x=4x$

10. Find the area.

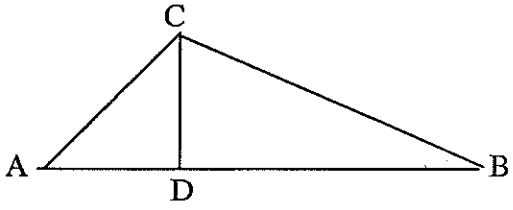
11. Find the circumference.

12. Find the length of the arc JK.

13. Find the area of the sector.



14. If AD = 3 and DB = 9, find CD and AC. Make a new figure for each part.



15. $\angle ACB$ is a right angle and $\overline{CD} \perp \overline{AB}$. Make a new figure for each part.

a. If AD = 7 and BD = 4, find CD.

b. If CD = 8 and DB = 6, find CB.

c. If BC = 8 and BD = 2, find AB.

d. If AC = 21 and AB = 29, find CB.