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UNIT 8: CIRCLE GEOMETRY

**8.2: PROPERTIES OF
CHORDS IN A
CIRCLE**

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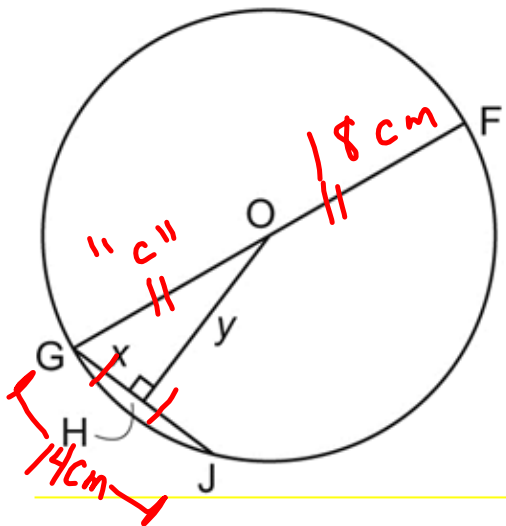
WHAT'S THE POINT OF TODAY'S LESSON?

We will continue working on the Math 9 Specific Curriculum Outcome (SCO) "Shape and Space 1" OR "SS1" which states:

"Solve problems and justify the solution strategy using circle properties, including:

- * the perpendicular from the centre of a circle to a chord bisects the chord;**
- * the measure of the central angle is equal to twice the measure of the inscribed angle subtended by the same arc;**
- * the inscribed angles subtended by the same arc are congruent;**
- * a tangent to a circle is perpendicular to the radius at the point of tangency."**

WARM-UP: Point O is the centre of the circle. $OF = 18$ cm and $GJ = 14$ cm. Determine the values of x and y to the nearest tenth of a centimetre where necessary.



$$GH = HJ = x = 7 \text{ cm (PCP)}$$

$$FO = GO = 18 \text{ cm (Radii)}$$

$$a^2 + b^2 = c^2$$

$$y^2 + 7^2 = 18^2$$

$$y^2 + 49 = 324$$

$$\sqrt{y^2} = \sqrt{275}$$

$$y = 16.58\dots$$

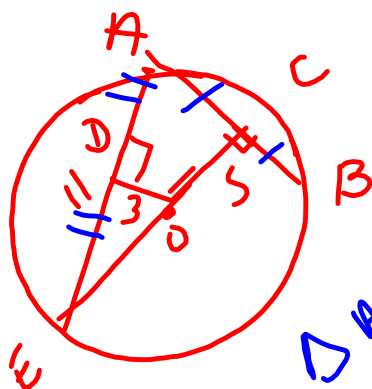
$$y = 16.6 \text{ cm}$$

HOMWORK QUESTIONS???

(PAGE 398, #7 & #9 TO #12)

10. a)
b)

10. a)



$$AB = 10$$

$$AC = BC = 5 \text{ (PCP)}$$

$$\triangle ABE \quad a^2 + b^2 = c^2$$

$$a^2 + 5^2 = 11^2$$

$$a^2 + 25 = 121$$

$$\sqrt{a^2} = \sqrt{96}$$

$$a = 9.7980$$

(CE)

$$AD = DE = 5.5 \text{ (PCP)}$$

$$\triangle DEO$$

$$a^2 + b^2 = c^2$$

$$3^2 + 5.5^2 = c^2$$

$$9 + 30.25 = c^2$$

$$\sqrt{39.25} = \sqrt{c^2}$$

$$6.2650 = c$$

(EO)

$$s = CE - EO$$

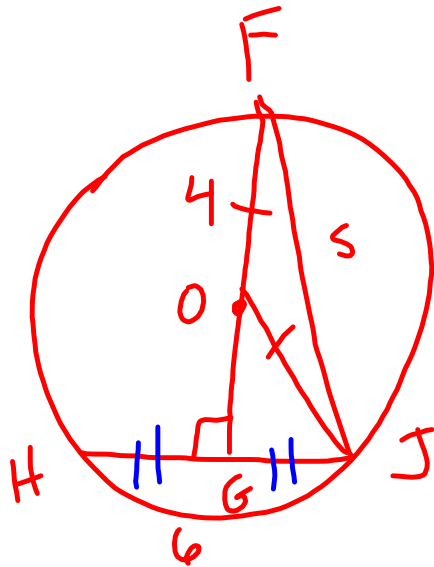
$$= 9.798 - 6.265$$

$$= 3.533$$

$$= 3.5$$

HOMEWORK QUESTIONS???
(PAGE 398, #7 & #9 TO #12)

10. b)



$$HG = GJ = 3 \text{ (PCP)}$$

ΔGJO :

$$a^2 + b^2 = c^2$$

$$a^2 + 3^2 = 4^2$$

$$a^2 + 9 = 16$$

$$\sqrt{a^2} = \sqrt{7}$$

$$a \doteq 2.6458$$

(GO)

ΔFGJ :

$$FG = FO + GO$$

$$= 4 + 2.6458$$

$$\doteq 6.6458$$

$$a^2 + b^2 = c^2$$

$$3^2 + 6.6458^2 = s^2$$

$$9 + 44.1667 \doteq s^2$$

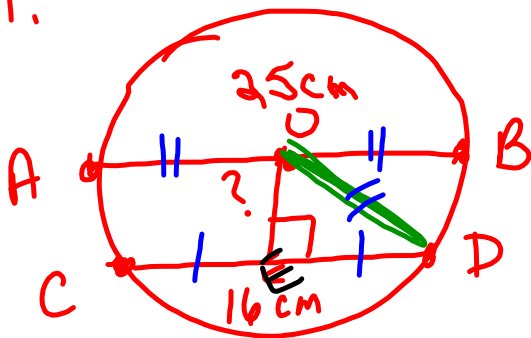
$$\sqrt{53.1667} \doteq \sqrt{s^2}$$

$$7.2915 \doteq s$$

$$7.3 \doteq s$$

HOMWORK QUESTIONS???
(PAGE 398, #7 & #9 TO #12)

11.



$$\angle DEO = 90^\circ \text{ (PCP)}$$

$$CE = DE = 8 \text{ (PCP)}$$

$$BO = DO = \frac{25}{2} \text{ (Radii)}$$

$$= 12.5 \text{ cm}$$

$$a^2 + b^2 = c^2$$

$$a^2 + 8^2 = 12.5^2$$

$$a^2 + 64 = 156.25$$

$$\sqrt{a^2} = \sqrt{92.25}$$

$$a = 9.6 \text{ cm}$$

(EO)

CONCEPT REINFORCEMENT:

MMS9:

PAGE 390: #18 } TRP

PAGE 391: #20

PAGE 399: #14, #17 & #18 } PCP