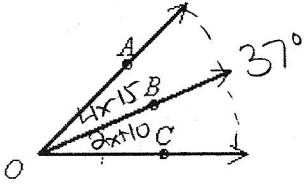


Chapter 1.1, 1.5-1.8 Test

Directions: Read the directions for each question carefully. Complete work and write your answer in the designated box. Attempt EVERY problem. Show ALL work. NO work = NO credit. Good Luck! :)

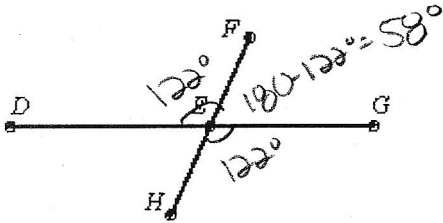
1. If $m\angle AOC = 37^\circ$, $m\angle BOC = 2x + 10$, and $m\angle AOB = 4x - 15$, find the degree measure of $\angle BOC$ and $\angle AOB$. The diagram is not to scale.



$$\begin{aligned} (4x-15) + (2x+10) &= 37 \quad +2 \\ 6x - 5 &= 37 \\ 6x &= 42 \\ x &= 7 \quad +2 \\ \angle BOC &= 2(7) + 10 = 24^\circ \quad +2 \\ \angle AOB &= 4(7) - 15 = 13^\circ \quad +2 \end{aligned}$$

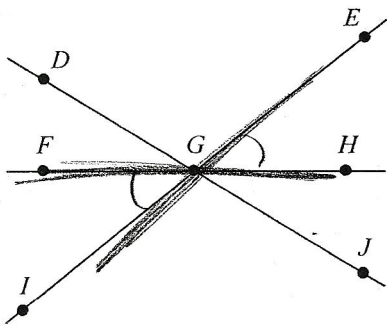
1. $\angle BOC = \underline{24^\circ}$
 $\angle AOB = \underline{13^\circ}$ 8pt

2. If $m\angle DEF = 122^\circ$, then what are $m\angle FEG$ and $m\angle HEG$? The diagram is not to scale.



2. $\angle FEG = \underline{58^\circ}$
 $\angle HEG = \underline{122^\circ}$ 6pt

3. Name an angle vertical to $\angle EGH$.



3. $\underline{\angle FGI}$ 5pt

4. $\angle DFG$ and $\angle JKL$ are complementary angles. $m\angle DFG = x + 2$, and $m\angle JKL = x - 6$. Find the measure of each angle.



something to show that complementary means 90° +1

$$\begin{aligned} (x+2) + (x-6) &= 90 \quad +2 \\ 2x - 4 &= 90 \\ 2x &= 94 \\ x &= 47 \quad +2 \\ \angle DFG &= (47) + 2 = 49^\circ \quad +2 \\ \angle JKL &= (47) - 6 = 41^\circ \quad +2 \end{aligned}$$

4. $\angle DFG = \underline{49^\circ}$
 $\angle JKL = \underline{41^\circ}$ 9pt

5. $\angle 1$ and $\angle 2$ are a linear pair $m\angle 1 = x - 10$, and $m\angle 2 = x + 96$. Find the measure of each angle.

Something to show linear pair add to 180° +1

$$(x-10) + (x+96) = 180 \quad +2$$

$$2x + 86 = 180$$

$$2x = 94$$

$$x = 47 \quad +2$$

$$\angle 1 = (47) - 10 = 37^\circ \quad +2$$

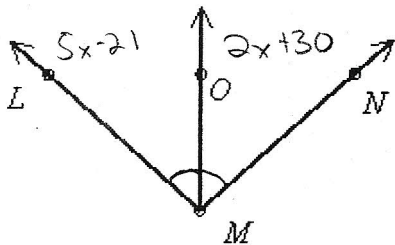
$$\angle 2 = (47) + 96 = 143^\circ \quad +2$$

$$5. \angle 1 = \underline{37^\circ}$$

$$\angle 2 = \underline{143^\circ}$$

9 pt

6. MO bisects $\angle LMN$, $m\angle LMO = 5x - 21$, and $m\angle NMO = 2x + 30$. Solve for x and find $m\angle LMN$. The diagram is not to scale.



$$5x - 21 = 2x + 30 \quad +3$$

$$3x - 21 = 30$$

$$3x = 51$$

$$x = 17 \quad +2$$

$$\begin{aligned} \angle LMN &= 5(17) - 21 + 2(17) + 30 \\ &= 128^\circ \end{aligned}$$

$$6. x = \underline{17}$$

$$\angle LMN = \underline{128^\circ}$$

8 pt

7. M is midpoint of \overline{CF} for the points $C(4, 3)$ and $F(10, 5)$. Find MF .

$$\frac{CF}{2} = \frac{\sqrt{(10-4)^2 + (5-3)^2}}{2}$$

$$= \frac{\sqrt{36+4}}{2}$$

$$= \frac{\sqrt{40}}{2}$$

$$= \sqrt{10}$$

$$\text{or } M = \left(\frac{4+10}{2}, \frac{3+5}{2} \right)$$

$$= \left(\frac{14}{2}, \frac{8}{2} \right)$$

$$= (7, 4) \quad +2$$

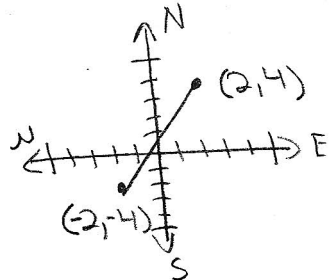
$$\begin{aligned} MF &= \frac{\sqrt{(10-7)^2 + (5-4)^2}}{2} \\ &= \frac{\sqrt{9+1}}{2} = \sqrt{10} \quad +3 \end{aligned}$$

$$7. MF = \underline{\sqrt{10} \text{ or } 3.16}$$

7 pt

Radical or decimal accepted

8. The Frostburg-Truth bus travels from Frostburg Mall through the city's center to Sojourner Truth Park. The mall is 2 miles east and 4 miles north of the city's center. Truth Park is 2 miles west and 2 miles south of the city's center. How far is it from Truth Park to the mall to the nearest tenth of a mile?



$$(2,4) \text{ \& } (-2,-4) \quad +2$$

$$d = \sqrt{(2+2)^2 + (4+4)^2} \quad +2$$

$$= \sqrt{16+64} \quad +1$$

$$= \sqrt{80}$$

$$= 8.9 \quad +2$$

$$8. \underline{8.9 \text{ miles}}$$

7 pt

(If left $\sqrt{80}$ then only +1)

9. Ralph wants to put a fence around his rectangular garden. His garden measures 31 feet by 45 feet. The garden has a path around it that is 3 feet wide. How much fencing material does Ross need to enclose the garden and path?

Show the garden is 37ft by 51ft +2

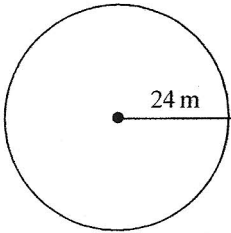
Proper perimeter equation +2

$$P = 176 \text{ ft} \quad +2$$

9. <u>176 ft</u>	6pt
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10. Find the circumference of the circle to the nearest tenth. Use 3.14 for π .

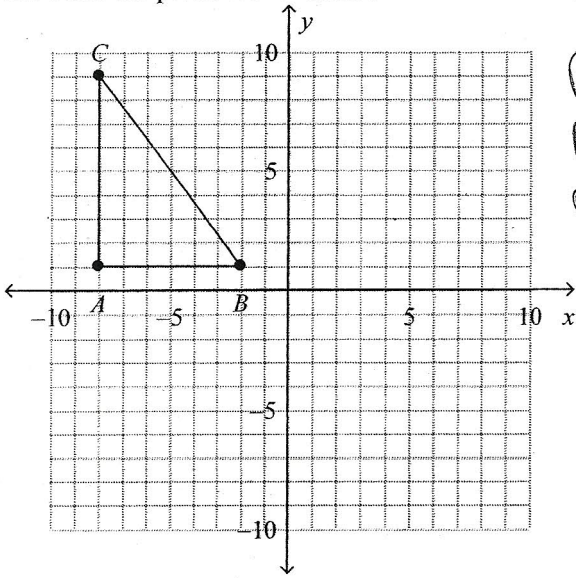


$$C = 2\pi r \quad +2$$

$$C = 150.72 \quad +2$$

10. <u>150.72 m</u>	4pt
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11. Find the perimeter of $\triangle ABC$ with vertices $A(-8, 1)$, $B(-2, 1)$, and $C(-8, 9)$.



$$AC = 8 \quad +2$$

$$AB = 6 \quad +2$$

$$BC = 10 \quad +2$$

$$P = 24 \quad +2$$

11. <u>24</u>	8pt
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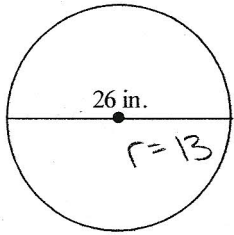
12. If the perimeter of a square is 156 inches, what is its area?

$$\text{Side} = \frac{156}{4} = 39 \quad +3$$

$$\text{Area} = 39^2 = 1521 \quad +3$$

12. 1521 in² 6pt

13. Find the area of the circle in terms of π .

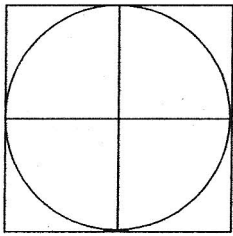


$$A = 13^2 \pi \quad +4$$

$$= 169 \pi \quad +2$$

13. 169 π in² 6pt

14. Find, to the nearest tenth, the area of the region that is inside the square and outside the circle. The circle has a diameter of 16 inches.



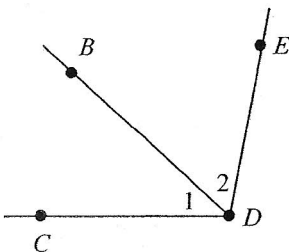
$$A_{\square} = 16^2 = 256 \quad +2$$

$$A_{\circ} = \pi 8^2 = 200.96 \quad +2$$

$$A_{\text{shaded}} = 256 - 200.96 = 55.04 \quad +2$$

14. 55.0 in² 6pt

15. What are two other names for $\angle 1$?



15. $\angle CDB$ & $\angle BDC$ 5pt