Name: _____ Date: _____

Int. Alg – Period: _____ (1st Qrtr) M_____

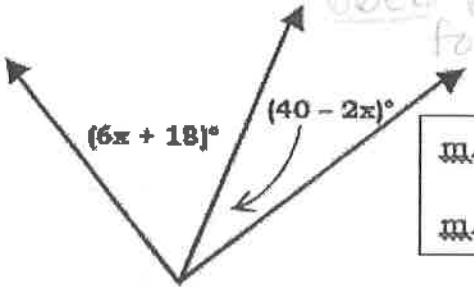
HW #34: Complementary Angles & Supplementary Angles

Directions: (look at the example to help you with these problems)

1. Name the angle relationship as complementary or supplementary.
2. Solve for x.
3. Substitute in the value of x to find the unknown angle measures.
4. Check your answers.
5. Show your work in your notebook.

Remember that these diagrams are not drawn to scale. I made them and I didn't use a ruler or a protractor.☺

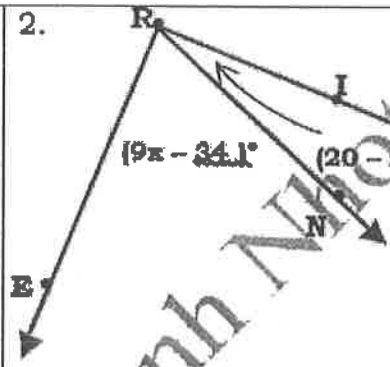
1.



m∠ 1 = 66

m∠ 2 = 24

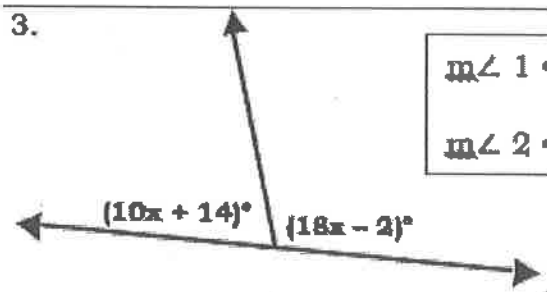
2.



m∠ERN = 83

m∠IRN = 7

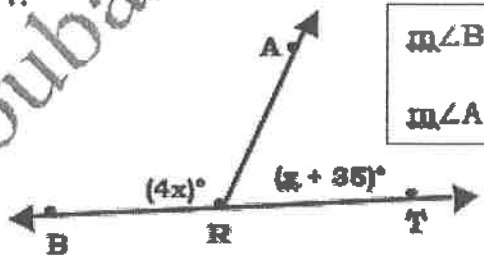
3.



m∠ 1 = 74

m∠ 2 = 106

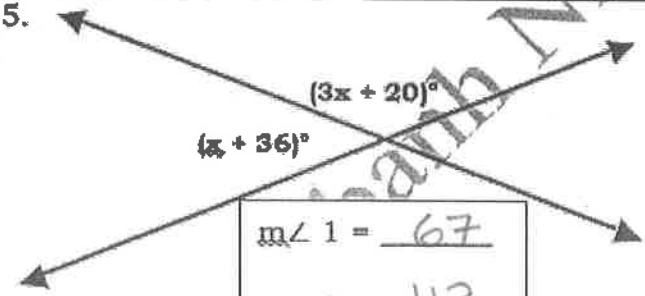
4.



m∠BRA = 116

m∠ART = 64

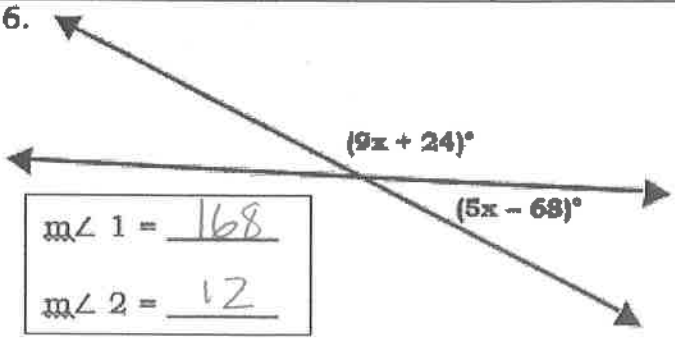
5.



m∠ 1 = 67

m∠ 2 = 113

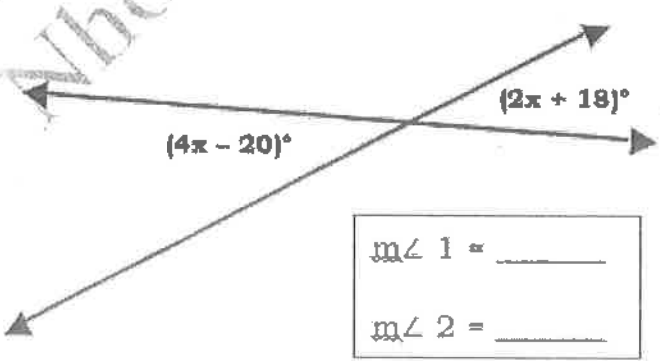
6.



m∠ 1 = 168

m∠ 2 = 12

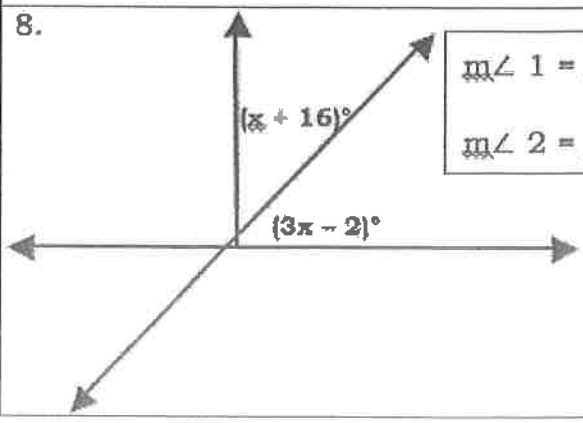
7.



m∠ 1 = _____

m∠ 2 = _____

8.



m∠ 1 = 35

m∠ 2 = 55

9/18/15
Honors Geometry

Complementary and Supplementary Angles HW

(1) $(6x) + 18 + 40 - (2x) = 90$

$4x + 58 = 90$

$-58 \quad -58$

$\frac{4x}{4} = \frac{32}{4}$

$x = 8$

$m\angle 1 = 6(8) + 18$

$= 48 + 18$

$m\angle 1 = \boxed{66}$

$m\angle 2 = 40 - 2(8)$

$= 40 - 16$

$m\angle 2 = \boxed{24}$

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(2) $9x - 34 + 20 - x = 90$

$8x - 14 = 90$

$+14 \quad +14$

$\frac{8x}{8} = \frac{104}{8}$

$x = 13$

$m\angle ERN = 9(13) - 34$

$= 117 - 34$

$m\angle ERN = \boxed{83}$

$m\angle IRN = 20 - (13)$

$= 7$

$m\angle IRN = \boxed{7}$

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(3) $10x + 14 + 18x - 2 = 180$

$28x + 12 = 180$

$-12 \quad -12$

$28x = 168$

$x = 6$

$m\angle 1 = 10(6) + 14$

$= 60 + 14$

$m\angle 1 = \boxed{74}$

$m\angle 2 = 18(6) - 2$

$= \boxed{106}$

(4) $4x + x + 35 = 180$

$5x + 35 = 180$

$-35 \quad -35$

$\frac{5x}{5} = \frac{145}{5}$

$x = 29$

$m\angle BRA = 4(29)$

$= \boxed{116}$

$m\angle ART = (29) + 35$

$= \boxed{64}$

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(5) $x + 36 + 3x + 20 = 180$

$4x + 56 = 180$

$-56 \quad -56$

$\frac{4x}{4} = \frac{124}{4}$

$x = 31$

$m\angle 1 = (31) + 36$

$= \boxed{67}$

$m\angle 2 = 3(31) + 20$

$= 93 + 20$

$m\angle 2 = \boxed{113}$

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(6) $9x + 24 + 5x - 68 = 180$

$14x - 44 = 180$

$+44 \quad +44$

$\frac{14x}{14} = \frac{224}{14}$

$x = 16$

$m\angle 1 = 9(16) + 24$

$= 144 + 24$

$m\angle 1 = \boxed{168}$

$m\angle 2 = 5(16) - 68$

$= 80 - 68$

$m\angle 2 = \boxed{12}$

(7) Vertical angles! $2x+18 = 4x-20$
extra credit :)

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(8) $x+16+3x-2 = 90$

$4x+14 = 90$

$-14 \quad -14$

$\frac{4x}{4} = \frac{76}{4}$

$x = 19$

$m\angle 1 = (19)+16$

$= \boxed{35}$

$m\angle 2 = 3(19)-2$

$= \boxed{55}$

NOTE: Which is $\angle 1$ and which is $\angle 2$ doesn't matter, as long as they add up to either 180 or 90!