# HW: Feb. 7 Answer Key

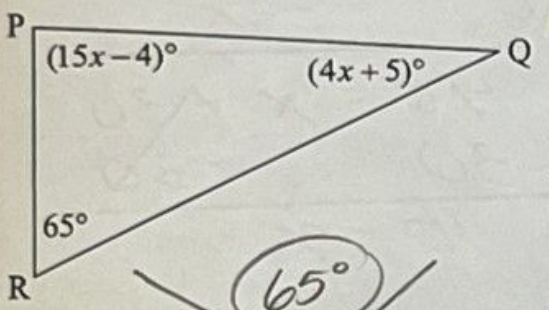
## HW: Exterior Angles of a Triangle

Name: Key

Math 7H – Feb. 7

CREATED FOR YOU BY MS. NHOTSOUDANH

1. Find the value of x and the measures of each angle.



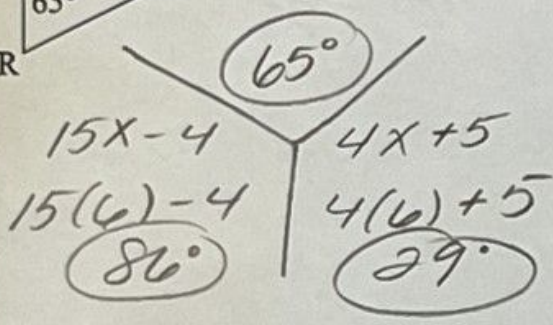

$15x - 4 + 4x + 5 + 65 = 180$

$19x + 66 = 180$

$-66 \quad -66$

$\frac{19x}{19} = \frac{114}{19}$

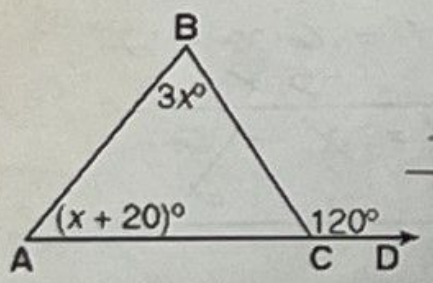
$x = 6$




Identity the type of triangle shown in the diagram. Acute Δ

b/c all 3 ∠s are less than 90°

2. Find the value of x then the measures of the 2 remote angles shown in the diagram.




$120 = 3x + x + 20$

$120 = 4x + 20$

$-20 \quad -20$

$\frac{100}{4} = \frac{4x}{4}$

$25 = x$

$3x$

$3(25)$

$75°$

$x + 20$

$25 + 20$

$45°$

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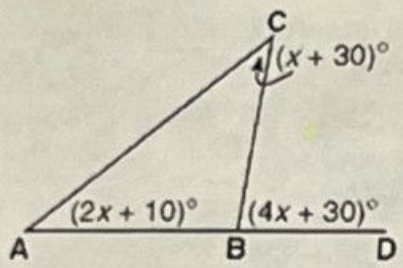
**3.** Find the value of x then the measures of each angle shown in the diagram.




$x + 30 + 2x + 10 = 4x + 30$

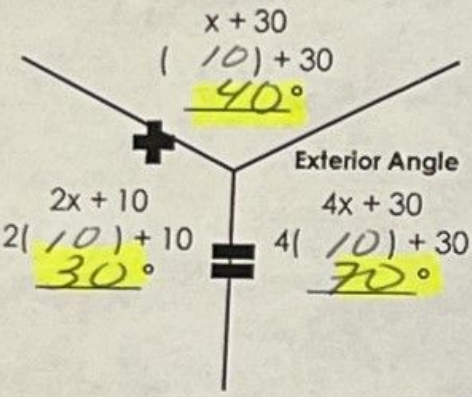
$3x + 40 = 4x + 30$

$-3x \quad -3x$

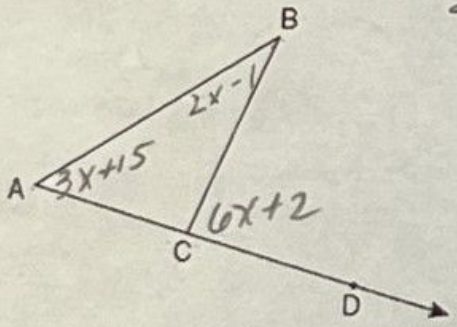
$40 = x + 30$

$-30 \quad -30$

$10 = x$




**4.** In the diagram below, $\Delta ABC$ is shown with $AC$ extended through point $D$. If $m\angle BCD = 6x + 2$, $m\angle BAC = 3x + 15$, and $m\angle ABC = 2x - 1$. What is $m\angle A$?




$2x - 1 + 3x + 15 = 6x + 2$

$5x + 14 = 6x + 2$

$-5x \quad -5x$

$14 = x + 2$

$-2 \quad -2$

$12 = x$

$\measuredangle A = 3x + 15$

$3(12) + 15$

$51°$

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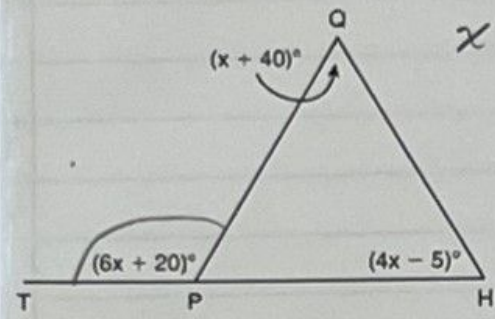
**5.** In the diagram below of $\Delta HQP$, side $HP$ is extended through $P$ to $T$, $m\angle QPT = 6x + 20$, $m\angle HQP = x + 40$, and $m\angle PHQ = 4x - 5$. Find $m\angle QPT$.




(Not drawn to scale)

$x + 40 + 4x - 5 = 6x + 20$

$5x + 35 = 6x + 20$

$-5x \quad -5x$

$35 = x + 20$

$-20 \quad -20$

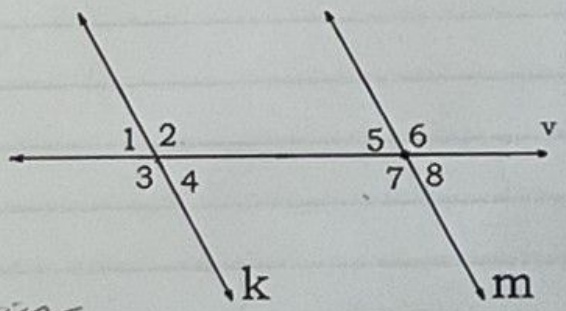
$15 = x$

$m\angle QPT = 6x + 20$

$6(15) + 20$

$110°$

**6. Identify** the angle relationship for each angle pair as: alternate interior, alternate exterior, same-side interior, same-side exterior, corresponding, vertical, or supplementary.




∠2 & ∠7
alt. interior

∠2 & ∠6
corresponding

∠4 & ∠7
Same-side Interior

∠3 & ∠6
alt. exterior

∠6 & ∠7
vertical

∠7 & ∠8
Supplementary