Solving Corresponding Parts of Congruent Triangles

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Reminder

To solve the corresponding parts of congruent triangles, remember:
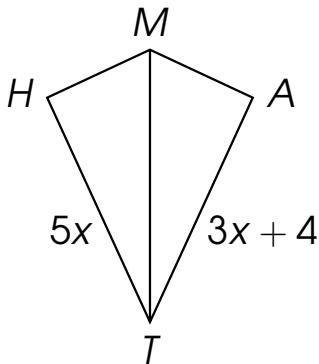
Reminder

To solve the corresponding parts of congruent triangles, remember:

The Corresponding Parts of Congruent Triangles are Congruent (CPCTC).

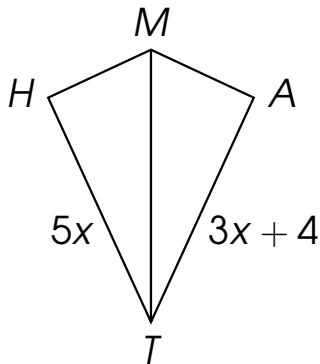# Example 1

Given: $\triangle MHT \cong \triangle MAT$
Find: x

Example 1

Given: $\triangle MHT \cong \triangle MAT$
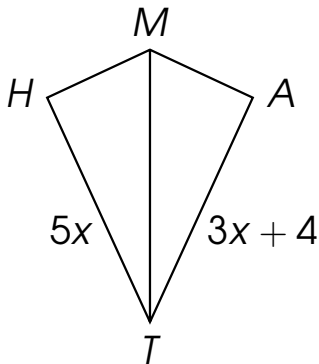Find: x

$\overline{HT} \cong$

Example 1

Given: $\triangle MHT \cong \triangle MAT$
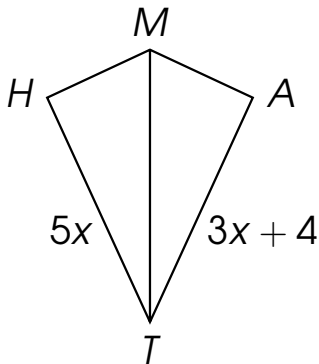Find: x

$\overline{HT} \cong \overline{AT}$

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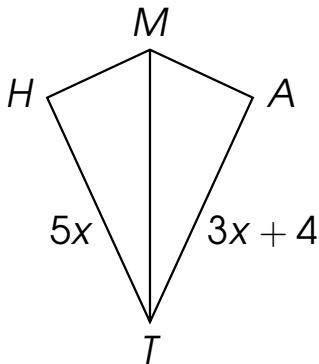$m\overline{HT} = m\overline{AT}$

Example 1

Given: $\triangle MHT \cong \triangle MAT$
Find: x

$\overline{HT} \cong \overline{AT}$
$m\overline{HT} = m\overline{AT}$
$5x = 3x + 4$
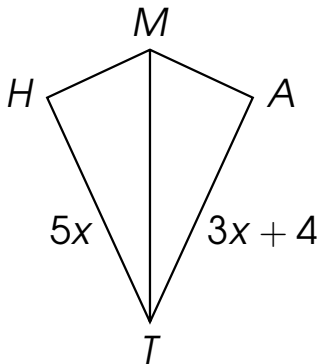
Example 1

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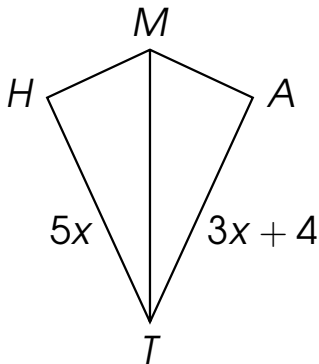# Example 1

Given: $\triangle MHT \cong \triangle MAT$
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$\overline{HT} \cong \overline{AT}$
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$5x - 3x = 3x - 3x + 4$
$2x = 4$

Example 1

Given: $\triangle MHT \cong \triangle MAT$
Find: x

$\overline{HT} \cong \overline{AT}$
$m\overline{HT} = m\overline{AT}$
$5x = 3x + 4$
$5x - 3x = 3x - 3x + 4$
$2x = 4$
$\dfrac{2x}{2} = \dfrac{4}{2}$

Example 1

Given: $\triangle MHT \cong \triangle MAT$
Find: x

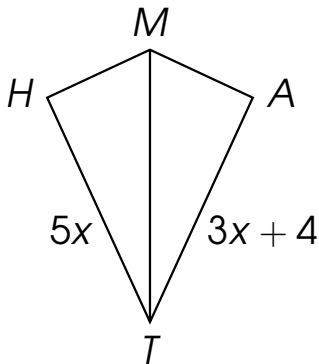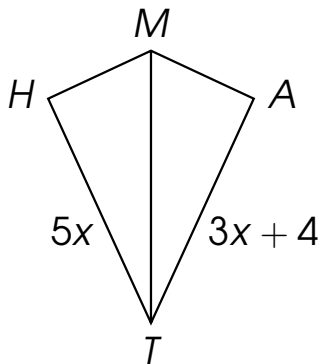$\overline{HT} \cong \overline{AT}$
$m\overline{HT} = m\overline{AT}$
$5x = 3x + 4$
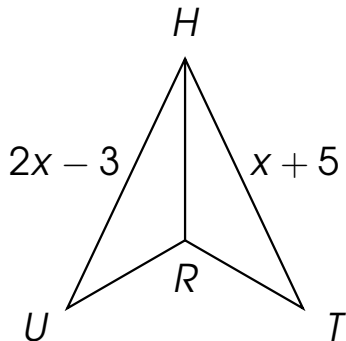$5x - 3x = 3x - 3x + 4$
$2x = 4$
$\dfrac{2x}{2} = \dfrac{4}{2}$
$x = 2$

Example 2

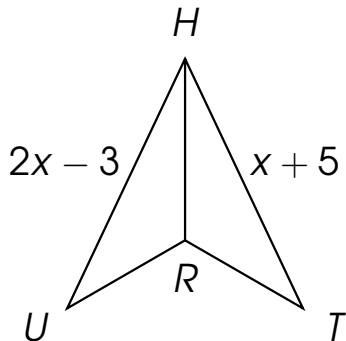Given: $\triangle HRU \cong \triangle HRT$
Find: x

Example 2

Given: $\triangle HRU \cong \triangle HRT$
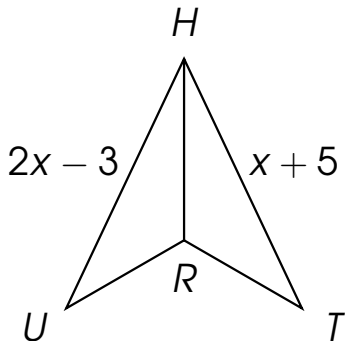Find: x

$\overline{HU} \cong$

Example 2

Given: $\triangle HRU \cong \triangle HRT$
Find: x

$\overline{HU} \cong \overline{HT}$
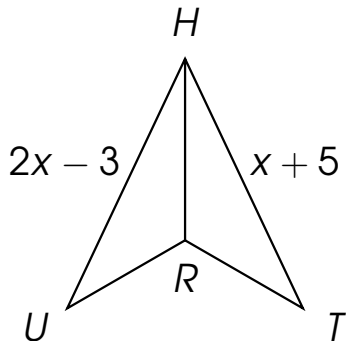

H

$2x - 3$ $x + 5$

R

U T

Example 2

Given: $\triangle HRU \cong \triangle HRT$
Find: x

$\overline{HU} \cong \overline{HT}$
$m\overline{HU} = m\overline{HT}$

Example 2

Given: $\triangle HRU \cong \triangle HRT$
Find: x

$\overline{HU} \cong \overline{HT}$
$m\overline{HU} = m\overline{HT}$
$2x - 3 = x + 5$

Example 2

Given: $\triangle HRU \cong \triangle HRT$
Find: x

$\overline{HU} \cong \overline{HT}$
$m\overline{HU} = m\overline{HT}$
$2x - 3 = x + 5$
$2x - x - 3 + 3 = x - x + 5 + 3$

Example 2

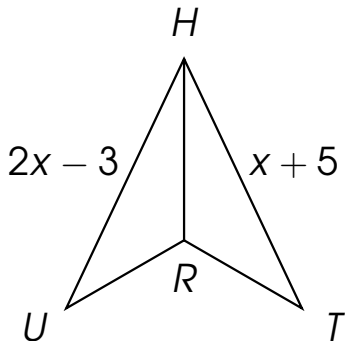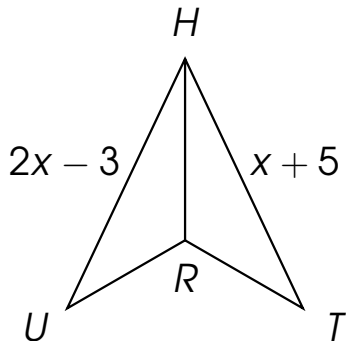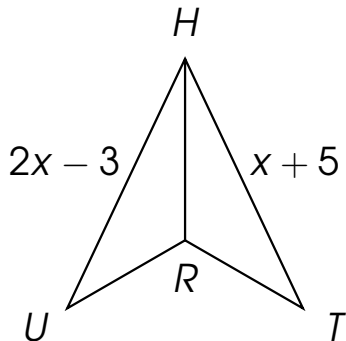Given: $\triangle HRU \cong \triangle HRT$
Find: x

$\overline{HU} \cong \overline{HT}$
$m\overline{HU} = m\overline{HT}$
$2x - 3 = x + 5$
$2x - x - 3 + 3 = x - x + 5 + 3$
$x = 8$
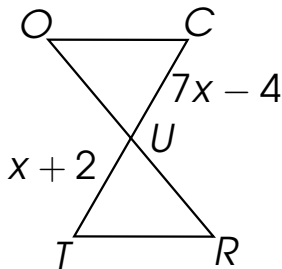
Example 3

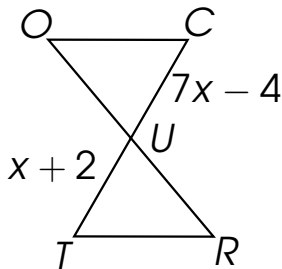Given: $\triangle OCU \cong \triangle RTU$
Find: x

Example 3

Given: $\triangle OCU \cong \triangle RTU$
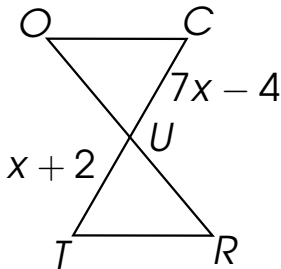Find: x

$\overline{CU} \cong$

Example 3

Given: $\triangle OCU \cong \triangle RTU$
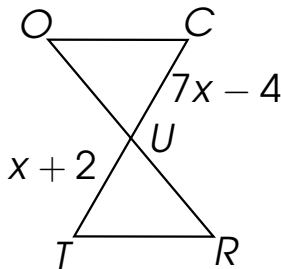Find: x

$\overline{CU} \cong \overline{TU}$

Example 3

Given: $\triangle OCU \cong \triangle RTU$
Find: x

$\overline{CU} \cong \overline{TU}$
$m\overline{CU} = m\overline{TU}$

Example 3

Given: $\triangle OCU \cong \triangle RTU$
Find: x

$\overline{CU} \cong \overline{TU}$
$m\overline{CU} = m\overline{TU}$
$7x - 4 = x + 2$

Example 3

Given: $\triangle OCU \cong \triangle RTU$

Find: x

$\overline{CU} \cong \overline{TU}$

$m\overline{CU} = m\overline{TU}$

$7x - 4 = x + 2$

$7x - x - 4 + 4 = x - x + 2 + 4$

Example 3

Given: $\triangle OCU \cong \triangle RTU$
Find: x

$\overline{CU} \cong \overline{TU}$
$m\overline{CU} = m\overline{TU}$
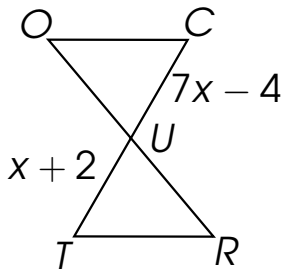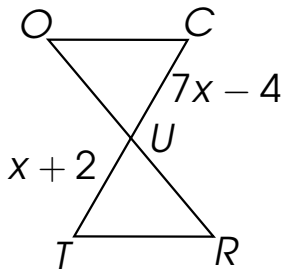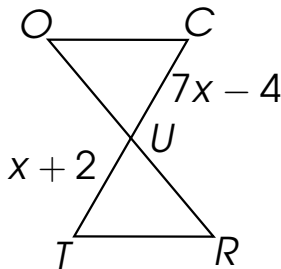$7x - 4 = x + 2$
$7x - x - 4 + 4 = x - x + 2 + 4$
$6x = 6$

Example 3

Given: $\triangle OCU \cong \triangle RTU$
Find: x

$\overline{CU} \cong \overline{TU}$
$m\overline{CU} = m\overline{TU}$
$7x - 4 = x + 2$
$7x - x - 4 + 4 = x - x + 2 + 4$
$6x = 6$
$\dfrac{6x}{6} = \dfrac{6}{6}$

Example 3

Given: $\triangle OCU \cong \triangle RTU$
Find: x

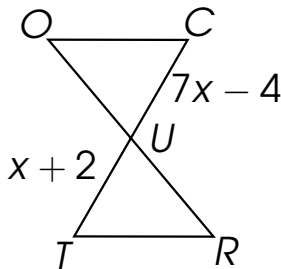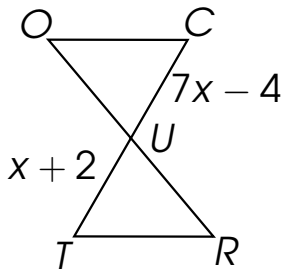$\overline{CU} \cong \overline{TU}$
$m\overline{CU} = m\overline{TU}$
$7x - 4 = x + 2$
$7x - x - 4 + 4 = x - x + 2 + 4$
$6x = 6$
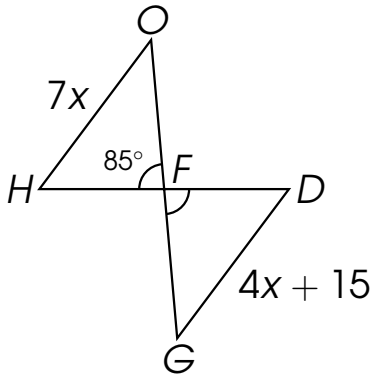$\dfrac{6x}{6} = \dfrac{6}{6}$
$x = 1$

Example 4

Given: $\triangle OFH \cong \triangle GFD$
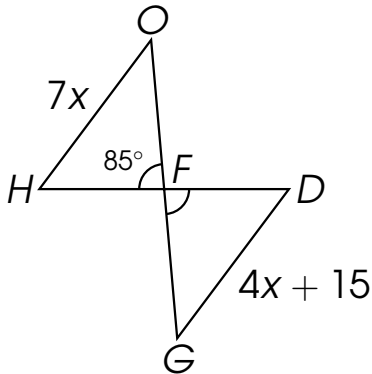Find: $m\overline{OH}$ and $m\angle DFG$

Example 4

Given: $\triangle OFH \cong \triangle GFD$

Find: $m\overline{OH}$ and $m\angle DFG$
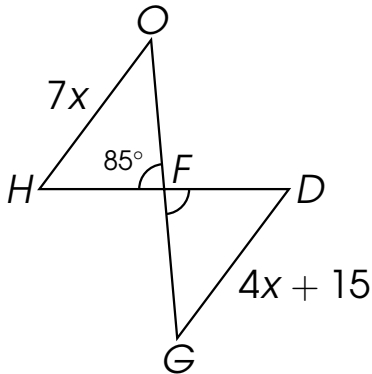
$\overline{OH} \cong$

Example 4

Given: $\triangle OFH \cong \triangle GFD$

Find: $m\overline{OH}$ and $m\angle DFG$

$\overline{OH} \cong \overline{GD}$

Example 4

Given: $\triangle OFH \cong \triangle GFD$
Find: $m\overline{OH}$ and $m\angle DFG$

$\overline{OH} \cong \overline{GD}$
$m\overline{OH} = m\overline{GD}$

Example 4

Given: $\triangle OFH \cong \triangle GFD$
Find: $m\overline{OH}$ and $m\angle DFG$

$\overline{OH} \cong \overline{GD}$
$m\overline{OH} = m\overline{GD}$
$7x = 4x + 15$

Example 4

Given: $\triangle OFH \cong \triangle GFD$
Find: $m\overline{OH}$ and $m\angle DFG$

$\overline{OH} \cong \overline{GD}$
$m\overline{OH} = m\overline{GD}$
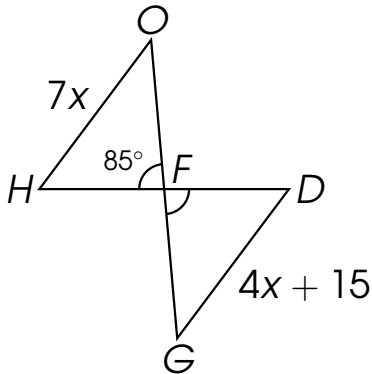$7x = 4x + 15$
$7x - 4x = 4x - 4x + 15$

Example 4

Given: $\triangle OFH \cong \triangle GFD$
Find: $m\overline{OH}$ and $m\angle DFG$

$\overline{OH} \cong \overline{GD}$
$m\overline{OH} = m\overline{GD}$
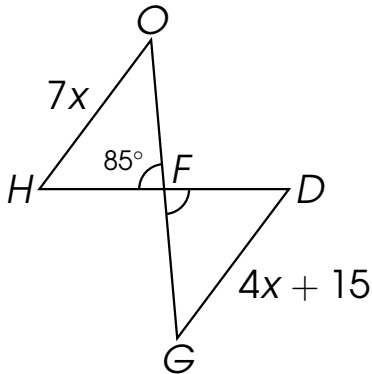$7x = 4x + 15$
$7x - 4x = 4x - 4x + 15$
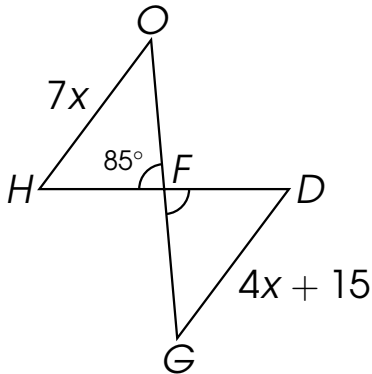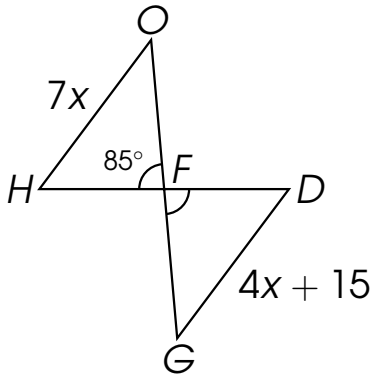$3x = 15$

Example 4

Given: $\triangle OFH \cong \triangle GFD$
Find: $m\overline{OH}$ and $m\angle DFG$

$\overline{OH} \cong \overline{GD}$
$m\overline{OH} = m\overline{GD}$
$7x = 4x + 15$
$7x - 4x = 4x - 4x + 15$
$3x = 15$
$\dfrac{3x}{3} = \dfrac{15}{3}$

Example 4

Given: $\triangle OFH \cong \triangle GFD$
Find: $m\overline{OH}$ and $m\angle DFG$

$\overline{OH} \cong \overline{GD}$
$m\overline{OH} = m\overline{GD}$
$7x = 4x + 15$
$7x - 4x = 4x - 4x + 15$
$3x = 15$
$\dfrac{3x}{3} = \dfrac{15}{3}$
$x = 5$

Example 4

Given: $\triangle OFH \cong \triangle GFD$
Find: $m\overline{OH}$ and $m\angle DFG$

$\overline{OH} \cong \overline{GD}$
$m\overline{OH} = m\overline{GD}$
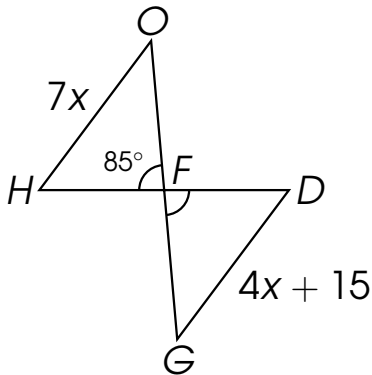$7x = 4x + 15$
$7x - 4x = 4x - 4x + 15$
$3x = 15$
$\dfrac{3x}{3} = \dfrac{15}{3}$
$x = 5$

$m\overline{OH} = 7x$

Example 4

Given: $\triangle OFH \cong \triangle GFD$
Find: $m\overline{OH}$ and $m\angle DFG$

$\overline{OH} \cong \overline{GD}$
$m\overline{OH} = m\overline{GD}$
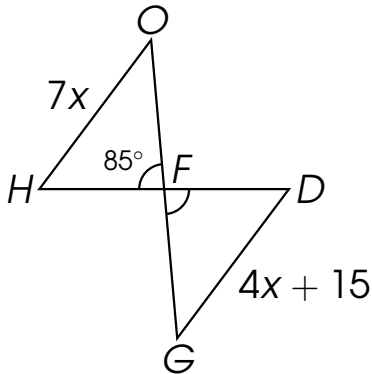$7x = 4x + 15$
$7x - 4x = 4x - 4x + 15$
$3x = 15$
$\dfrac{3x}{3} = \dfrac{15}{3}$
$x = 5$

$m\overline{OH} = 7x$
$m\overline{OH} = 7(5)$

Example 4

Given: $\triangle OFH \cong \triangle GFD$
Find: $m\overline{OH}$ and $m\angle DFG$

$\overline{OH} \cong \overline{GD}$
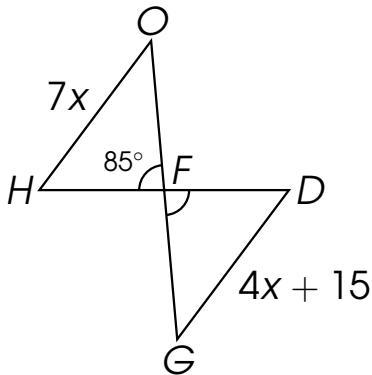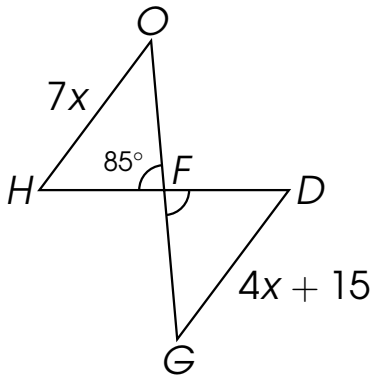$m\overline{OH} = m\overline{GD}$
$7x = 4x + 15$
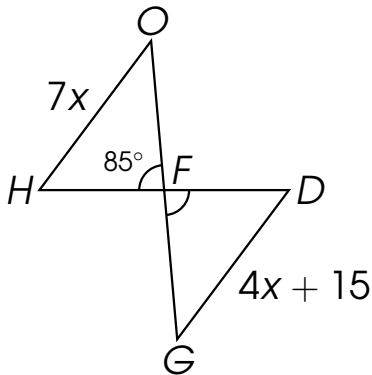$7x - 4x = 4x - 4x + 15$
$3x = 15$
$\dfrac{3x}{3} = \dfrac{15}{3}$
$x = 5$

$m\overline{OH} = 7x$
$m\overline{OH} = 7(5)$
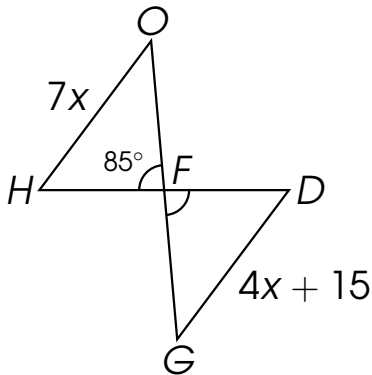$m\overline{OH} = 35$ units

Example 4

Given: $\triangle OFH \cong \triangle GFD$
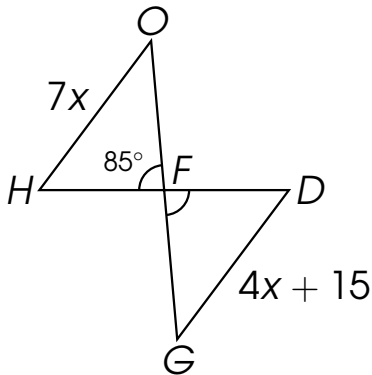Find: $m\overline{OH}$ and $m\angle DFG$

Example 4

Given: $\triangle OFH \cong \triangle GFD$

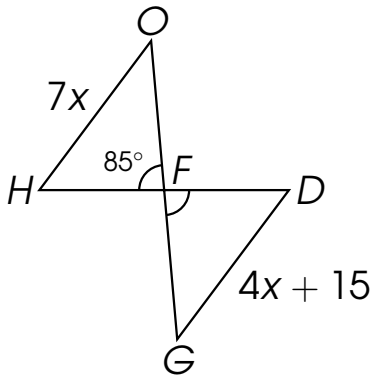Find: $m\overline{OH}$ and $m\angle DFG$

$\angle DFG \cong$

Example 4

Given: $\triangle OFH \cong \triangle GFD$
Find: $m\overline{OH}$ and $m\angle DFG$

$\angle DFG \cong \angle HFO$

Example 4

Given: $\triangle OFH \cong \triangle GFD$
Find: $m\overline{OH}$ and $m\angle DFG$

$\angle DFG \cong \angle HFO$
$m\angle DFG = m\angle HFO$

Example 4

Given: $\triangle OFH \cong \triangle GFD$
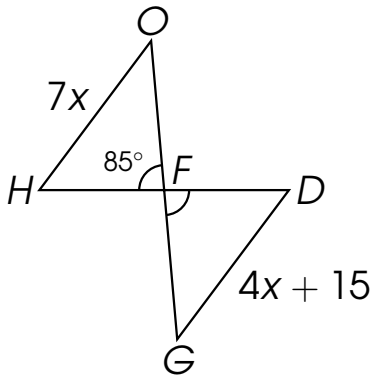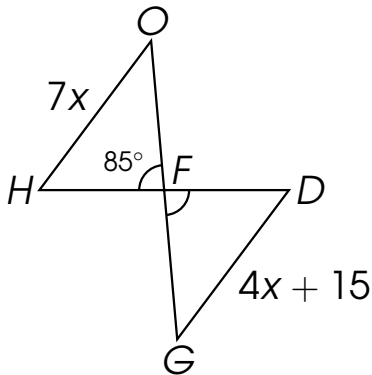Find: $m\overline{OH}$ and $m\angle DFG$

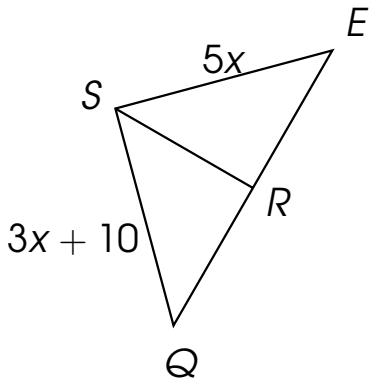$\angle DFG \cong \angle HFO$
$m\angle DFG = m\angle HFO$
$m\angle DFG = 85°$

Example 5

Given: $\triangle ESR \cong \triangle QSR$
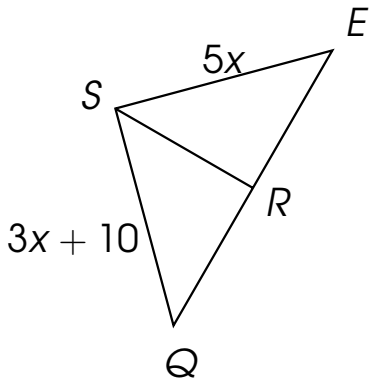Find: $m\overline{SQ}$

Example 5

Given: $\triangle ESR \cong \triangle QSR$
Find: $m\overline{SQ}$

$\overline{SQ} \cong$

Example 5

Given: $\triangle ESR \cong \triangle QSR$
Find: $m\overline{SQ}$

$\overline{SQ} \cong \overline{SE}$

Example 5

Given: $\triangle ESR \cong \triangle QSR$
Find: $m\overline{SQ}$

$\overline{SQ} \cong \overline{SE}$
$m\overline{SQ} = m\overline{SE}$

Example 5

Given: $\triangle ESR \cong \triangle QSR$
Find: $m\overline{SQ}$

$\overline{SQ} \cong \overline{SE}$
$m\overline{SQ} = m\overline{SE}$
$3x + 10 = 5x$

Example 5

Given: $\triangle ESR \cong \triangle QSR$
Find: $m\overline{SQ}$

$\overline{SQ} \cong \overline{SE}$
$m\overline{SQ} = m\overline{SE}$
$3x + 10 = 5x$
$3x - 5x + 10 - 10 = 5x - 5x - 10$

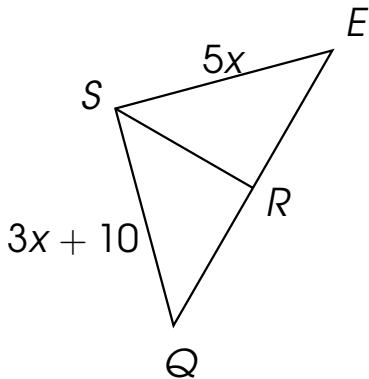# Example 5

Given: $\triangle ESR \cong \triangle QSR$
Find: $m\overline{SQ}$

$\overline{SQ} \cong \overline{SE}$
$m\overline{SQ} = m\overline{SE}$
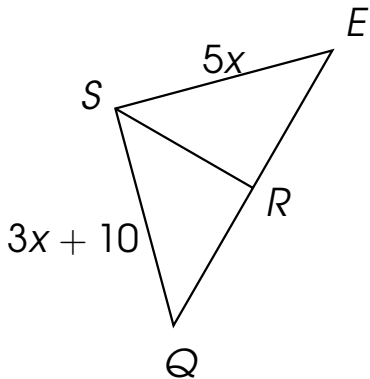$3x + 10 = 5x$
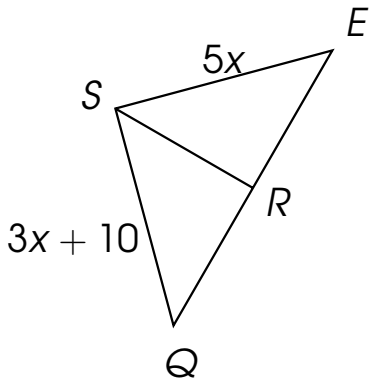$3x - 5x + 10 - 10 = 5x - 5x - 10$
$-2x = -10$

Example 5

Given: $\triangle ESR \cong \triangle QSR$
Find: $m\overline{SQ}$

$\overline{SQ} \cong \overline{SE}$
$m\overline{SQ} = m\overline{SE}$
$3x + 10 = 5x$
$3x - 5x + 10 - 10 = 5x - 5x - 10$
$-2x = -10$
$\dfrac{-2x}{-2} = \dfrac{-10}{-2}$
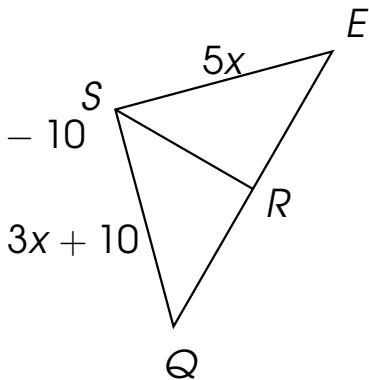
Example 5

Given: $\triangle ESR \cong \triangle QSR$
Find: $m\overline{SQ}$
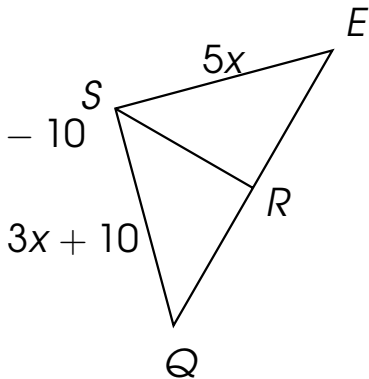
$\overline{SQ} \cong \overline{SE}$
$m\overline{SQ} = m\overline{SE}$
$3x + 10 = 5x$
$3x - 5x + 10 - 10 = 5x - 5x - 10$
$-2x = -10$
$\dfrac{-2x}{-2} = \dfrac{-10}{-2}$
$x = 5$

Example 5

Given: $\triangle ESR \cong \triangle QSR$
Find: $m\overline{SQ}$

$\overline{SQ} \cong \overline{SE}$
$m\overline{SQ} = m\overline{SE}$
$3x + 10 = 5x$
$3x - 5x + 10 - 10 = 5x - 5x - 10$
$-2x = -10$
$\dfrac{-2x}{-2} = \dfrac{-10}{-2}$
$x = 5$

$m\overline{SQ} = 3x + 10$

Example 5

Given: $\triangle ESR \cong \triangle QSR$
Find: $m\overline{SQ}$

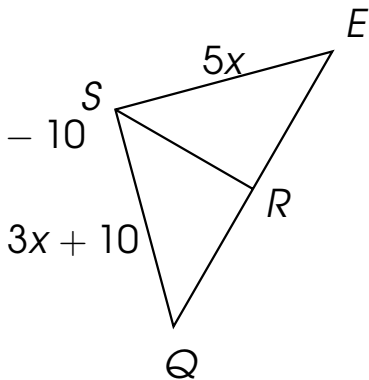$\overline{SQ} \cong \overline{SE}$
$m\overline{SQ} = m\overline{SE}$
$3x + 10 = 5x$
$3x - 5x + 10 - 10 = 5x - 5x - 10$
$-2x = -10$
$\dfrac{-2x}{-2} = \dfrac{-10}{-2}$
$x = 5$

$m\overline{SQ} = 3x + 10$
$m\overline{SQ} = 3(5) + 10$

Example 5

Given: $\triangle ESR \cong \triangle QSR$
Find: $m\overline{SQ}$

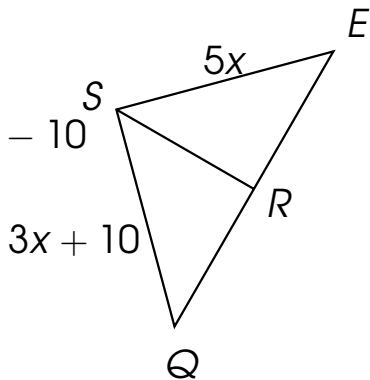$\overline{SQ} \cong \overline{SE}$
$m\overline{SQ} = m\overline{SE}$
$3x + 10 = 5x$
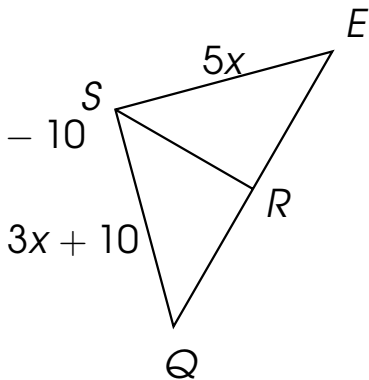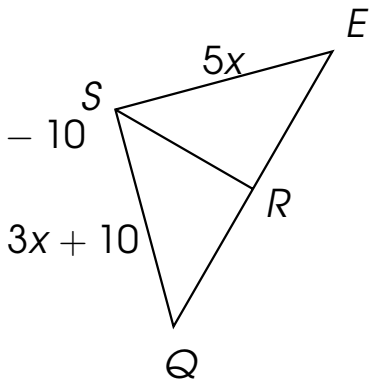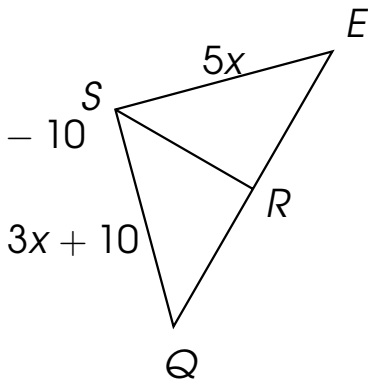$3x - 5x + 10 - 10 = 5x - 5x - 10$
$-2x = -10$
$\dfrac{-2x}{-2} = \dfrac{-10}{-2}$
$x = 5$

$m\overline{SQ} = 3x + 10$
$m\overline{SQ} = 3(5) + 10$
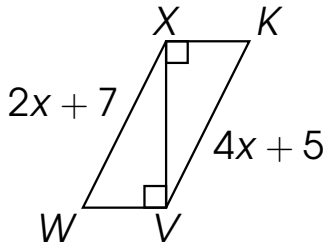$m\overline{SQ} = 25$ units

Example 6

Given: $\triangle XVW \cong \triangle VXK$, $m\angle W = 70°$
Find: $m\overline{XW}$ and $m\angle K$

X

K

$2x + 7$

$4x + 5$

W V

Example 6

Given: $\triangle XVW \cong \triangle VXK, m\angle W = 70°$
Find: $m\overline{XW}$ and $m\angle K$

$\overline{XW} \cong$

$2x + 7$

$4x + 5$

X K

W V

Example 6

Given: $\triangle XVW \cong \triangle VXK$, $m\angle W = 70°$
Find: $m\overline{XW}$ and $m\angle K$

$\overline{XW} \cong \overline{VK}$

Example 6

Given: $\triangle XVW \cong \triangle VXK$, $m\angle W = 70°$
Find: $m\overline{XW}$ and $m\angle K$
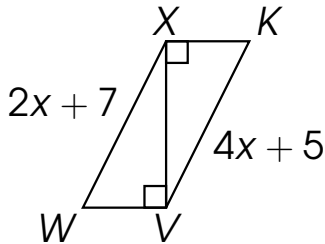
$\overline{XW} \cong \overline{VK}$
$m\overline{XW} = m\overline{VK}$

Example 6

Given: $\triangle XVW \cong \triangle VXK$, $m\angle W = 70°$
Find: $m\overline{XW}$ and $m\angle K$

$\overline{XW} \cong \overline{VK}$
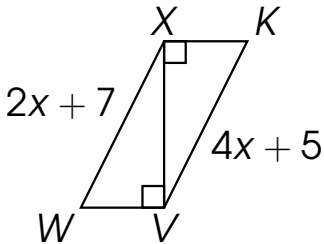$m\overline{XW} = m\overline{VK}$
$2x + 7 = 4x + 5$

Example 6

Given: $\triangle XVW \cong \triangle VXK, m\angle W = 70°$
Find: $m\overline{XW}$ and $m\angle K$

$\overline{XW} \cong \overline{VK}$
$m\overline{XW} = m\overline{VK}$
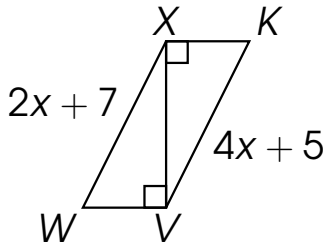$2x + 7 = 4x + 5$
$2x - 4x + 7 - 7 = 4x - 4x + 5 - 7$

Example 6
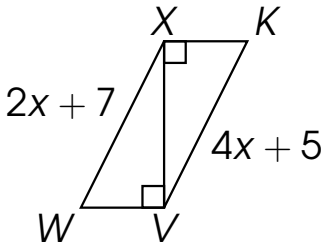
Given: $\triangle XVW \cong \triangle VXK, m\angle W = 70°$
Find: $m\overline{XW}$ and $m\angle K$

$\overline{XW} \cong \overline{VK}$
$m\overline{XW} = m\overline{VK}$
$2x + 7 = 4x + 5$
$2x - 4x + 7 - 7 = 4x - 4x + 5 - 7$
$-2x = -2$

Example 6
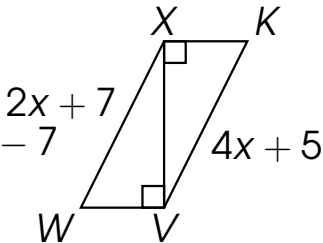
Given: $\triangle XVW \cong \triangle VXK, m\angle W = 70°$
Find: $m\overline{XW}$ and $m\angle K$

$\overline{XW} \cong \overline{VK}$
$m\overline{XW} = m\overline{VK}$
$2x + 7 = 4x + 5$
$2x - 4x + 7 - 7 = 4x - 4x + 5 - 7$
$-2x = -2$
$\dfrac{-2x}{-2} = \dfrac{-2}{-2}$

Example 6

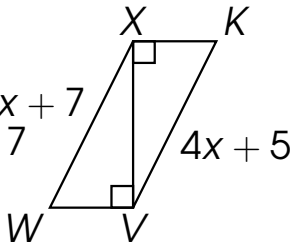Given: $\triangle XVW \cong \triangle VXK$, $m\angle W = 70°$
Find: $m\overline{XW}$ and $m\angle K$

$\overline{XW} \cong \overline{VK}$
$m\overline{XW} = m\overline{VK}$
$2x + 7 = 4x + 5$
$2x - 4x + 7 - 7 = 4x - 4x + 5 - 7$
$-2x = -2$
$\dfrac{-2x}{-2} = \dfrac{-2}{-2}$
$x = 1$

Example 6

Given: $\triangle XVW \cong \triangle VXK, m\angle W = 70°$
Find: $m\overline{XW}$ and $m\angle K$

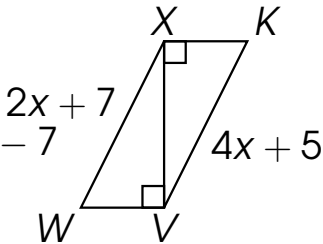$\overline{XW} \cong \overline{VK}$
$m\overline{XW} = m\overline{VK}$
$2x + 7 = 4x + 5$
$2x - 4x + 7 - 7 = 4x - 4x + 5 - 7$
$-2x = -2$
$\dfrac{-2x}{-2} = \dfrac{-2}{-2}$
$x = 1$

$m\overline{XW} = 2x + 7$

Example 6

Given: $\triangle XVW \cong \triangle VXK$, $m\angle W = 70°$
Find: $m\overline{XW}$ and $m\angle K$

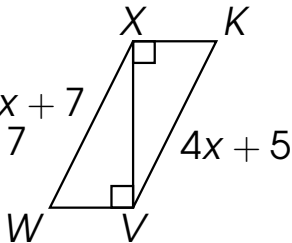$\overline{XW} \cong \overline{VK}$
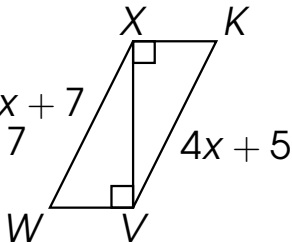$m\overline{XW} = m\overline{VK}$
$2x + 7 = 4x + 5$
$2x - 4x + 7 - 7 = 4x - 4x + 5 - 7$
$-2x = -2$
$\dfrac{-2x}{-2} = \dfrac{-2}{-2}$
$x = 1$

$m\overline{XW} = 2x + 7$
$m\overline{XW} = 2(1) + 7$

Example 6

Given: $\triangle XVW \cong \triangle VXK$, $m\angle W = 70°$
Find: $m\overline{XW}$ and $m\angle K$

$\overline{XW} \cong \overline{VK}$
$m\overline{XW} = m\overline{VK}$
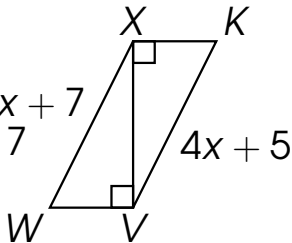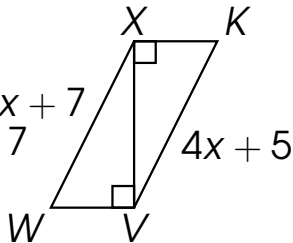$2x + 7 = 4x + 5$
$2x - 4x + 7 - 7 = 4x - 4x + 5 - 7$
$-2x = -2$
$\dfrac{-2x}{-2} = \dfrac{-2}{-2}$
$x = 1$
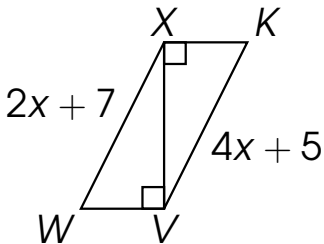
$m\overline{XW} = 2x + 7$
$m\overline{XW} = 2(1) + 7$
$m\overline{XW} = 9$ units

Example 6

Given: $\triangle XVW \cong \triangle VXK$, $m\angle W = 70°$
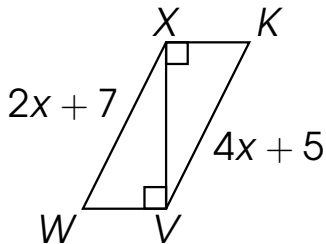Find: $m\overline{XW}$ and $m\angle K$

Example 6

Given: $\triangle XVW \cong \triangle VXK$, $m\angle W = 70°$
Find: $m\overline{XW}$ and $m\angle K$

$\angle K \cong$

Example 6

Given: $\triangle XVW \cong \triangle VXK, m\angle W = 70°$
Find: $m\overline{XW}$ and $m\angle K$

$\angle K \cong \angle W$

Example 6

Given: $\triangle XVW \cong \triangle VXK, m\angle W = 70°$

Find: $m\overline{XW}$ and $m\angle K$

$\angle K \cong \angle W$

$m\angle K = m\angle W$

Example 6

Given: $\triangle XVW \cong \triangle VXK$, $m\angle W = 70°$
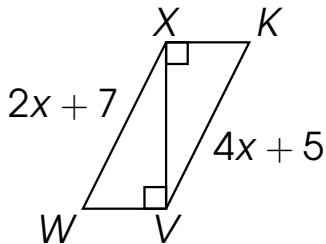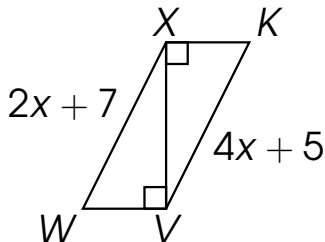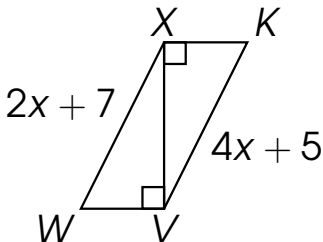
Find: $m\overline{XW}$ and $m\angle K$
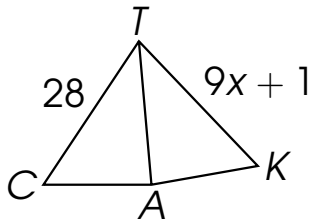
$\angle K \cong \angle W$

$m\angle K = m\angle W$

$m\angle K = 70°$

Example 7

Given: $\triangle TAC \cong \triangle TAK$
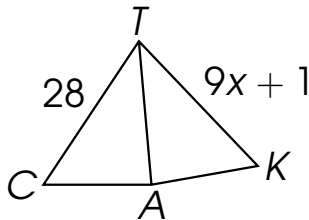Find: x

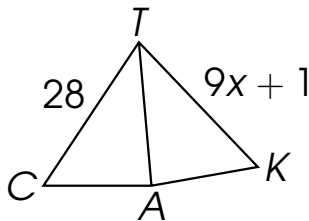# Example 7

Given: $\triangle TAC \cong \triangle TAK$
Find: x

$\overline{TC} \cong$

Example 7

Given: $\triangle TAC \cong \triangle TAK$
Find: x

$\overline{TC} \cong \overline{TK}$
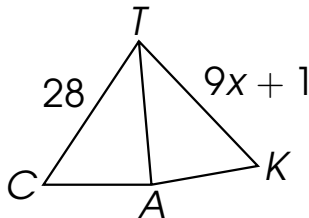

28, $9x + 1$

T

C A K

Example 7

Given: $\triangle TAC \cong \triangle TAK$
Find: x

$\overline{TC} \cong \overline{TK}$
$m\overline{TC} = m\overline{TK}$

Example 7

Given: $\triangle TAC \cong \triangle TAK$
Find: x

$\overline{TC} \cong \overline{TK}$
$m\overline{TC} = m\overline{TK}$
$28 = 9x + 1$

Example 7

Given: $\triangle TAC \cong \triangle TAK$
Find: x

$\overline{TC} \cong \overline{TK}$
$m\overline{TC} = m\overline{TK}$
$28 = 9x + 1$
$28 - 28 - 9x = 9x - 9x + 1 - 28$

Example 7

Given: $\triangle TAC \cong \triangle TAK$
Find: x

$\overline{TC} \cong \overline{TK}$
$m\overline{TC} = m\overline{TK}$
$28 = 9x + 1$
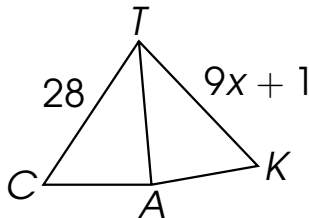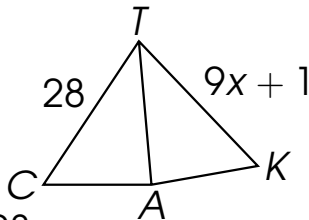$28 - 28 - 9x = 9x - 9x + 1 - 28$
$-9x = -27$

Example 7

Given: $\triangle TAC \cong \triangle TAK$
Find: x

$\overline{TC} \cong \overline{TK}$

$m\overline{TC} = m\overline{TK}$

$28 = 9x + 1$

$28 - 28 - 9x = 9x - 9x + 1 - 28$

$-9x = -27$

$\dfrac{-9x}{-9} = \dfrac{-27}{-9}$
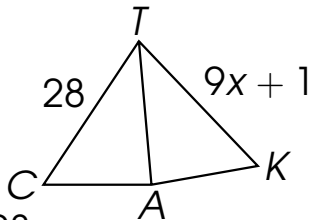
Example 7

Given: $\triangle TAC \cong \triangle TAK$
Find: x

$\overline{TC} \cong \overline{TK}$

$m\overline{TC} = m\overline{TK}$

$28 = 9x + 1$
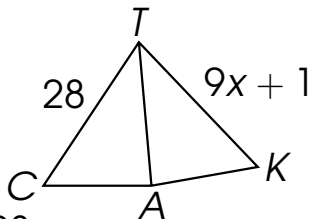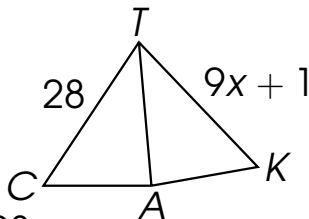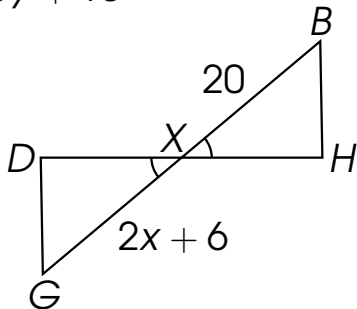
$28 - 28 - 9x = 9x - 9x + 1 - 28$

$-9x = -27$

$\dfrac{-9x}{-9} = \dfrac{-27}{-9}$

$x = 3$

Example 8

Given: $\triangle BXH \cong \triangle GXD$,
$m\angle BXH = y + 30, m\angle DXG = 3y + 10$
Find: x and y

Example 8

Given: $\triangle BXH \cong \triangle GXD$,
$m\angle BXH = y + 30, m\angle DXG = 3y + 10$
Find: x and y

$\overline{XG} \cong$

Example 8

Given: $\triangle BXH \cong \triangle GXD$,
$m\angle BXH = y + 30, m\angle DXG = 3y + 10$
Find: x and y

$\overline{XG} \cong \overline{XB}$

Example 8

Given: $\triangle BXH \cong \triangle GXD$,
$m\angle BXH = y + 30, m\angle DXG = 3y + 10$
Find: x and y

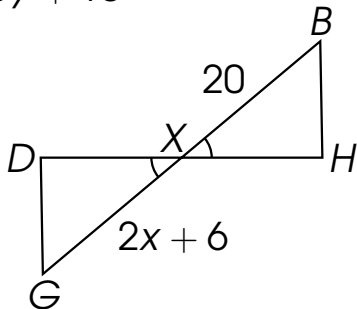$\overline{XG} \cong \overline{XB}$
$m\overline{XG} = m\overline{XB}$

Example 8

Given: $\triangle BXH \cong \triangle GXD$,
$m\angle BXH = y + 30, m\angle DXG = 3y + 10$
Find: x and y

$\overline{XG} \cong \overline{XB}$
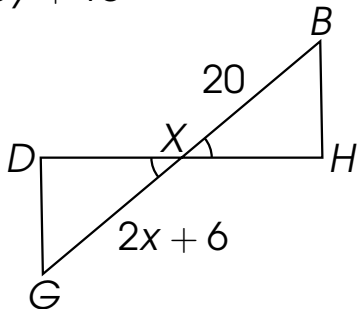$m\overline{XG} = m\overline{XB}$
$2x + 6 = 20$

Example 8

Given: $\triangle BXH \cong \triangle GXD$,
$m\angle BXH = y + 30, m\angle DXG = 3y + 10$
Find: x and y

$\overline{XG} \cong \overline{XB}$
$m\overline{XG} = m\overline{XB}$
$2x + 6 = 20$
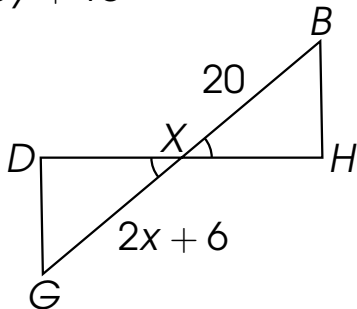$2x + 6 - 6 = 20 - 6$

Example 8

Given: $\triangle BXH \cong \triangle GXD$,
$m\angle BXH = y + 30, m\angle DXG = 3y + 10$
Find: x and y

$\overline{XG} \cong \overline{XB}$
$m\overline{XG} = m\overline{XB}$
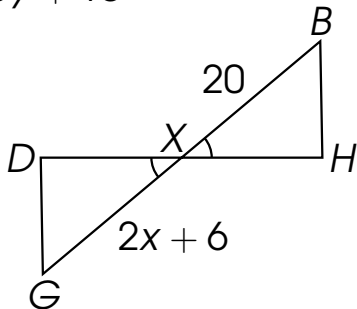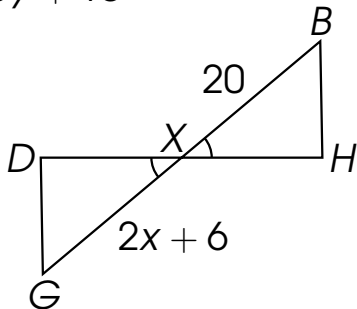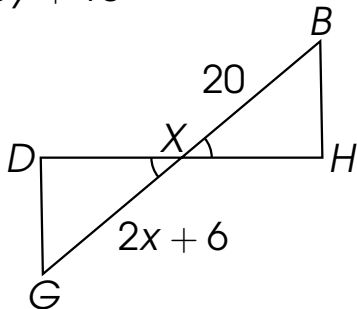$2x + 6 = 20$
$2x + 6 - 6 = 20 - 6$
$2x = 14$

Example 8

Given: $\triangle BXH \cong \triangle GXD$,
$m\angle BXH = y + 30, m\angle DXG = 3y + 10$
Find: x and y

$\overline{XG} \cong \overline{XB}$
$m\overline{XG} = m\overline{XB}$
$2x + 6 = 20$
$2x + 6 - 6 = 20 - 6$
$2x = 14$
$\dfrac{2x}{2} = \dfrac{14}{2}$

Example 8

Given: $\triangle BXH \cong \triangle GXD$,
$m\angle BXH = y + 30, m\angle DXG = 3y + 10$
Find: x and y

$\overline{XG} \cong \overline{XB}$
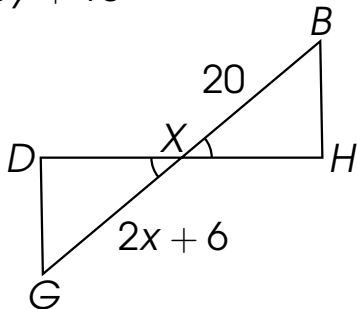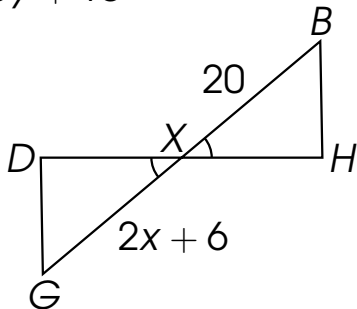$m\overline{XG} = m\overline{XB}$
$2x + 6 = 20$
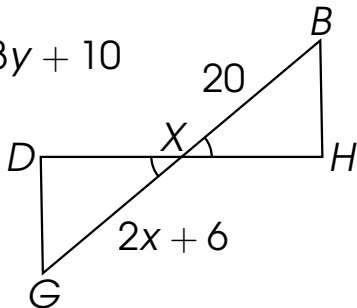$2x + 6 - 6 = 20 - 6$
$2x = 14$
$\dfrac{2x}{2} = \dfrac{14}{2}$
$x = 7$

Example 8

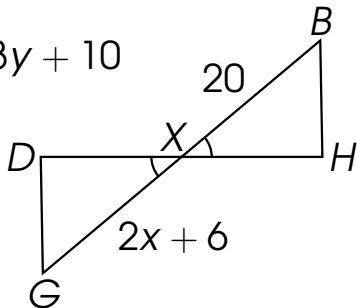Given: $\triangle BXH \cong \triangle GXD$,
$m\angle BXH = y + 30, m\angle DXG = 3y + 10$
Find: x and y

Example 8

Given: $\triangle BXH \cong \triangle GXD$,
$m\angle BXH = y + 30, m\angle DXG = 3y + 10$
Find: x and y

$\angle DXG \cong$

Example 8

Given: $\triangle BXH \cong \triangle GXD$,
$m\angle BXH = y + 30, m\angle DXG = 3y + 10$
Find: x and y

$\angle DXG \cong \angle BXH$

Example 8

Given: $\triangle BXH \cong \triangle GXD$,
$m\angle BXH = y + 30, m\angle DXG = 3y + 10$
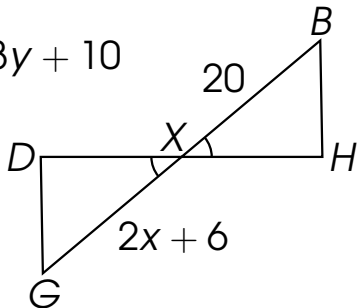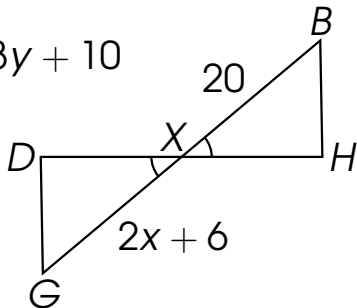Find: x and y

$\angle DXG \cong \angle BXH$
$m\angle DXG = m\angle BXH$

Example 8

Given: $\triangle BXH \cong \triangle GXD$,
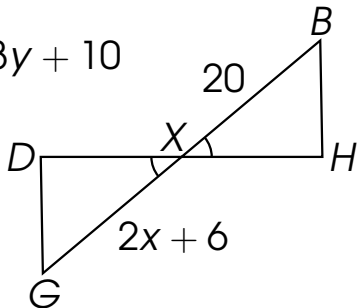$m\angle BXH = y + 30, m\angle DXG = 3y + 10$
Find: x and y

$\angle DXG \cong \angle BXH$
$m\angle DXG = m\angle BXH$
$3y + 10 = y + 30$

Example 8

Given: $\triangle BXH \cong \triangle GXD$,
$m\angle BXH = y + 30, m\angle DXG = 3y + 10$
Find: x and y

$\angle DXG \cong \angle BXH$
$m\angle DXG = m\angle BXH$
$3y + 10 = y + 30$
$3y - y + 10 - 10 = y - y + 30 - 10$

Example 8

Given: $\triangle BXH \cong \triangle GXD$,
$m\angle BXH = y + 30, m\angle DXG = 3y + 10$
Find: x and y

$\angle DXG \cong \angle BXH$
$m\angle DXG = m\angle BXH$
$3y + 10 = y + 30$
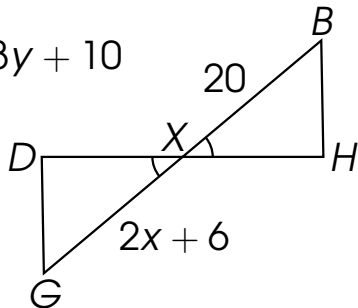$3y - y + 10 - 10 = y - y + 30 - 10$
$2y = 20$

Example 8

Given: $\triangle BXH \cong \triangle GXD$,
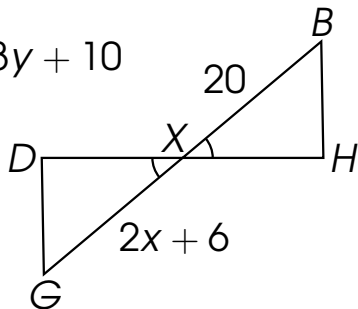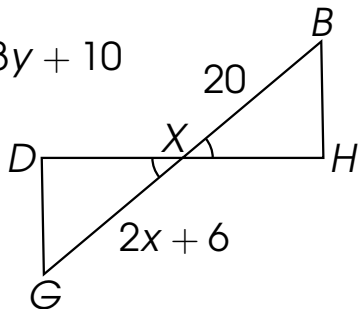$m\angle BXH = y + 30, m\angle DXG = 3y + 10$
Find: x and y

$\angle DXG \cong \angle BXH$
$m\angle DXG = m\angle BXH$
$3y + 10 = y + 30$
$3y - y + 10 - 10 = y - y + 30 - 10$
$2y = 20$
$\dfrac{2y}{2} = \dfrac{20}{2}$

Example 8

Given: $\triangle BXH \cong \triangle GXD$,
$m\angle BXH = y + 30, m\angle DXG = 3y + 10$
Find: x and y

$\angle DXG \cong \angle BXH$
$m\angle DXG = m\angle BXH$
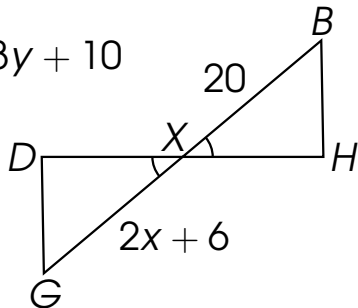$3y + 10 = y + 30$
$3y - y + 10 - 10 = y - y + 30 - 10$
$2y = 20$
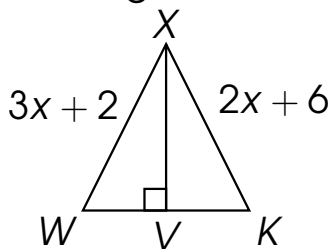$\dfrac{2y}{2} = \dfrac{20}{2}$
$y = 10$

Example 9

Given: $\triangle XWK$ is an equilateral triangle,
V is the midpoint of $\overline{WK}$
Find: $m\overline{WV}$

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$\overline{XW} \cong \overline{XK}$
$m\overline{XW} = m\overline{XK}$

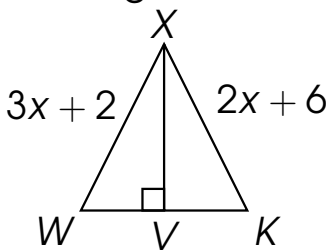# Example 9

Given: $\triangle XWK$ is an equilateral triangle,
V is the midpoint of $\overline{WK}$
Find: $m\overline{WV}$

$\overline{XW} \cong \overline{XK}$
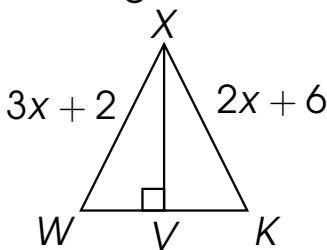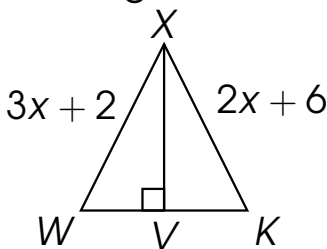$m\overline{XW} = m\overline{XK}$
$3x + 2 = 2x + 6$

Example 9

Given: $\triangle XWK$ is an equilateral triangle,
V is the midpoint of $\overline{WK}$
Find: $m\overline{WV}$

$\overline{XW} \cong \overline{XK}$
$m\overline{XW} = m\overline{XK}$
$3x + 2 = 2x + 6$
$3x - 2x + 2 - 2 = 2x - 2x + 6 - 2$

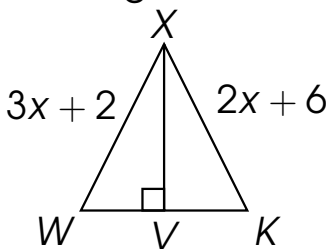# Example 9

Given: $\triangle XWK$ is an equilateral triangle,
V is the midpoint of $\overline{WK}$
Find: $m\overline{WV}$

$\overline{XW} \cong \overline{XK}$
$m\overline{XW} = m\overline{XK}$
$3x + 2 = 2x + 6$
$3x - 2x + 2 - 2 = 2x - 2x + 6 - 2$
$x = 4$

Example 9

Given: $\triangle XWK$ is an equilateral triangle,
V is the midpoint of $\overline{WK}$
Find: $m\overline{WV}$

$\overline{XW} \cong \overline{XK}$
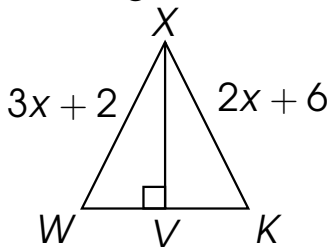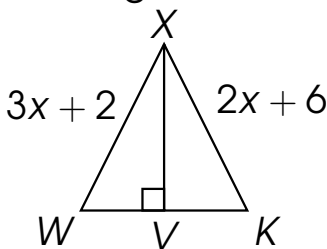$m\overline{XW} = m\overline{XK}$
$3x + 2 = 2x + 6$
$3x - 2x + 2 - 2 = 2x - 2x + 6 - 2$
$x = 4$
$m\overline{WV} = \dfrac{1}{2}m\overline{WK}$

Example 9

Given: $\triangle XWK$ is an equilateral triangle,
V is the midpoint of $\overline{WK}$
Find: $m\overline{WV}$

$\overline{XW} \cong \overline{XK}$
$m\overline{XW} = m\overline{XK}$
$3x + 2 = 2x + 6$
$3x - 2x + 2 - 2 = 2x - 2x + 6 - 2$
$x = 4$
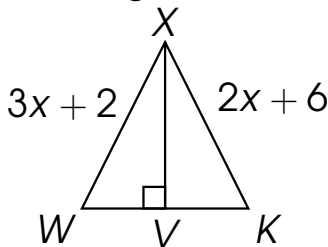$m\overline{WV} = \dfrac{1}{2}m\overline{WK} = \dfrac{1}{2}(2x + 6)$

Example 9

Given: $\triangle XWK$ is an equilateral triangle,
V is the midpoint of $\overline{WK}$
Find: $m\overline{WV}$

$\overline{XW} \cong \overline{XK}$
$m\overline{XW} = m\overline{XK}$
$3x + 2 = 2x + 6$
$3x - 2x + 2 - 2 = 2x - 2x + 6 - 2$
$x = 4$
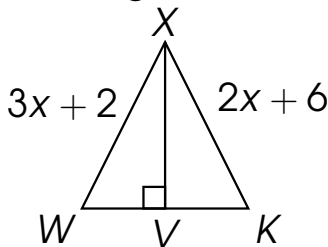$m\overline{WV} = \dfrac{1}{2}m\overline{WK} = \dfrac{1}{2}(2x + 6) = \dfrac{1}{2}(2(4) + 6)$

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Given: $\triangle XWK$ is an equilateral triangle,
V is the midpoint of $\overline{WK}$
Find: $m\overline{WV}$

$\overline{XW} \cong \overline{XK}$
$m\overline{XW} = m\overline{XK}$
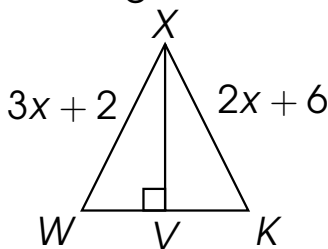$3x + 2 = 2x + 6$
$3x - 2x + 2 - 2 = 2x - 2x + 6 - 2$
$x = 4$
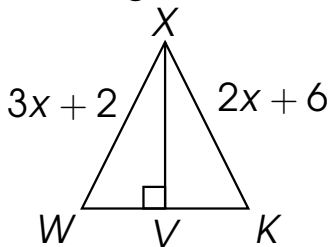$m\overline{WV} = \dfrac{1}{2} m\overline{WK} = \dfrac{1}{2}(2x + 6) = \dfrac{1}{2}(2(4) + 6)$
$m\overline{WV} = \dfrac{1}{2}(14)$

Example 9

Given: $\triangle XWK$ is an equilateral triangle,
V is the midpoint of $\overline{WK}$
Find: $m\overline{WV}$

$\overline{XW} \cong \overline{XK}$
$m\overline{XW} = m\overline{XK}$
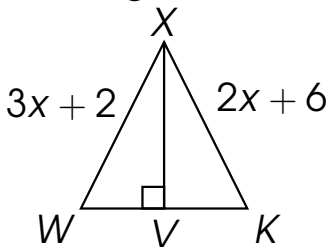$3x + 2 = 2x + 6$
$3x - 2x + 2 - 2 = 2x - 2x + 6 - 2$
$x = 4$
$m\overline{WV} = \dfrac{1}{2}m\overline{WK} = \dfrac{1}{2}(2x + 6) = \dfrac{1}{2}(2(4) + 6)$
$m\overline{WV} = \dfrac{1}{2}(14) = 7$ units

Thank you for watching.