

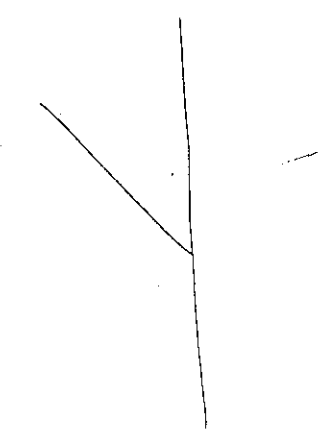
Solving with Angle Pairs

Solve each of the following. Be sure to show work.

Name _____

Block _____ Date _____

<p>1. \overline{PT} bisects $\angle RPT$ so that $m\angle RPB = x + 2$ and $m\angle TPB = 2x - 6$. Calculate x, $m\angle RPB$, $m\angle TPB$ and $m\angle RPT$?</p> <p> $x + 2 = 2x - 6$ $x = 8$ $m\angle RPB = 10$ $m\angle TPB = 10$ $m\angle RPT = 20$ </p>	<p>$\angle EFG$ and $\angle GFH$ are a linear pair. $m\angle EFG = 2x + 21$ and $m\angle GFH = 4x + 15$. What are x, $m\angle EFG$ and $m\angle GFH$?</p> <p> $2x + 21 + 4x + 15 = 180$ $6x + 36 = 180$ $6x = 144$ $x = 24$ $m\angle EFG = 69$ $m\angle GFH = 111$ </p>
<p>3. \overline{GH} bisects $\angle FGI$ so that $m\angle FGH = 3x - 3$ and $m\angle IGH = 4x - 14$. Calculate x, $m\angle FGH$, $m\angle IGH$ and $m\angle FGI$?</p> <p> $3x - 3 = 4x - 14$ $11 = x$ $m\angle FGH = 30$ $m\angle IGH = 30$ $m\angle FGI = 60$ </p>	<p>4. \overline{BD} bisects $\angle ABC$. $m\angle ABD = 5x$ and $m\angle DBC = 3x + 10$. Calculate x, $m\angle ABC$, $m\angle ABD$ and $m\angle DBC$.</p> <p> $5x = 3x + 10$ $2x = 10$ $x = 5$ $m\angle ABD = 25$ $m\angle DBC = 25$ $m\angle ABC = 50$ </p>
<p>5. $\angle ABD$ and $\angle DBC$ are complementary, $m\angle ABD = 4x + 5$ and $m\angle DBC = 7x + 8$. What are x, $m\angle ABD$ and $m\angle DBC$?</p> <p> $4x + 5 + 7x + 8 = 90$ $11x + 13 = 90$ $11x = 77$ $x = 7$ $m\angle ABD = 33$ $m\angle DBC = 57$ </p>	<p>6. $\angle ABD$ and $\angle DBC$ are supplementary, $m\angle ABD = 6x + 8$ and $m\angle DBC = 8x - 38$. What are x, $m\angle ABD$ and $m\angle DBC$?</p> <p> $6x + 8 + 8x - 38 = 180$ $14x - 30 = 180$ $14x = 210$ $x = 15$ $m\angle ABD = 98$ $m\angle DBC = 82$ </p>



<p>7. \overline{BD} bisects $\angle ABC$. $m\angle ABD = 3x + 20$ and $m\angle DBC = 6x - 16$. Calculate x, $m\angle ABC$, $m\angle ABD$ and $m\angle DBC$.</p> <p> $3x + 20 = 6x - 16$ $3x = 36$ $x = 12$ $m\angle ABD = 56$ $m\angle DBC = 56$ $m\angle ABC = 112$ </p>	<p>$\angle RQS$ and $\angle TQS$ are a linear pair, $m\angle RQS = 2x + 4$ and $m\angle TQS = 6x + 20$. What are x, $m\angle RQS$ and $m\angle TQS$?</p> <p> $2x + 4 + 6x + 20 = 180$ $8x + 24 = 180$ $8x = 156$ $x = 19.5$ $m\angle RQS = 43$ $m\angle TQS = 137$ </p>
<p>9. $\angle ABD$ and $\angle DBC$ are complementary, $m\angle ABD = 3x - 11$ and $m\angle DBC = 8x - 42$. What are x, $m\angle ABD$ and $m\angle DBC$?</p> <p> $3x - 11 + 8x - 42 = 90$ $11x - 53 = 90$ $11x = 143$ $x = 13$ $m\angle ABD = 28$ $m\angle DBC = 62$ </p>	<p>10. \overline{BD} bisects $\angle ABC$. $m\angle ABC = 4x - 12$ and $m\angle ABD = 24^\circ$. Calculate x, and $m\angle ABC$.</p> <p> $2(24) = 4x - 12$ $48 = 4x - 12$ $60 = 4x$ $x = 15$ $m\angle ABC = 48$ </p>
<p>11. \overline{BD} bisects $\angle ABC$. $m\angle ABD = 4x - 16$ and $m\angle DBC = 2x + 6$. Calculate x, $m\angle ABC$, $m\angle ABD$ and $m\angle DBC$.</p> <p> $4x - 16 = 2x + 6$ $2x = 22$ $x = 11$ $m\angle ABD = 28$ $m\angle DBC = 28$ $m\angle ABC = 56$ </p>	<p>12. $\angle ABD$ and $\angle DBC$ are supplementary, $m\angle ABD = 4x + 35$ and $m\angle DBC = 9x - 11$. What are x, $m\angle ABD$ and $m\angle DBC$?</p> <p> $4x + 35 + 9x - 11 = 180$ $13x + 24 = 180$ $13x = 156$ $x = 12$ $m\angle ABD = 83$ $m\angle DBC = 97$ </p>