

Homework 2.1 Vertical Angles, Linear Pairs, Complementary/Supplementary Angles & Angle Bisector

Find the **complement** of each angle.

1. 75°

2. 58°

3. 8°

Find the **supplement** of each angle.

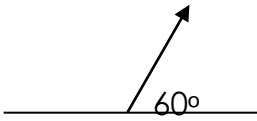
4. 36°

5. 118°

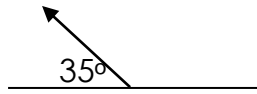
6. 85°

Find the missing angle.

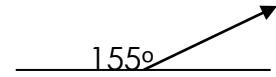
7.



8.

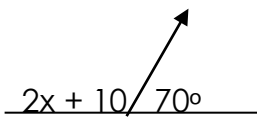


9.



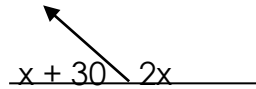
Solve for x .

10.



$x =$

11.



$x =$

12. Linear pairs could be defined as being supplementary angles because they always add up to 180° . Are all supplementary angles linear pairs? Explain.

Refer to the diagram to answer each. \overline{BE} is an angle bisector.

13. If $m\angle ABC = 86^\circ$, find $m\angle ABE$.

14. If $m\angle ABE = 27^\circ$, find $m\angle EBC$.

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Solutions

Find the **complement** of each angle.

1. 75°

2. 58°

3. 8°

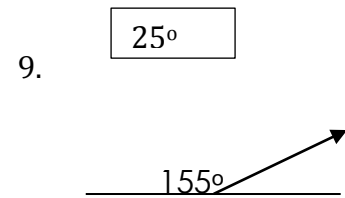
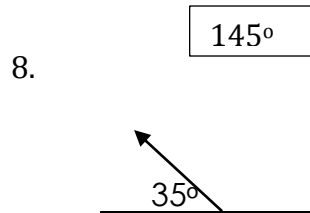
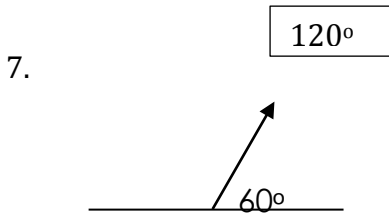
Find the **supplement** of each angle.

4. 36°

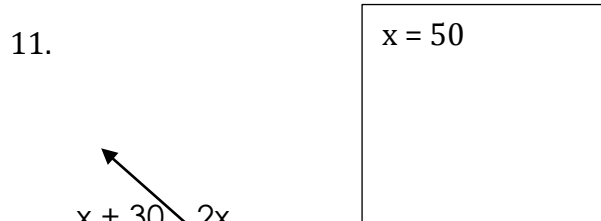
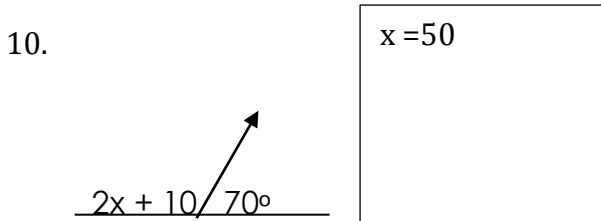
5. 118°

6. 85°

Find the **missing angle**.



Solve for x .



12. Linear pairs could be defined as being supplementary angles because they always add up to 180° . Are all supplementary angles linear pairs? Explain.

No, all supplementary angles are not linear pairs, they will only be linear pairs if they are adjacent supplementary angles as then it will form a straight line/straight angle.

Refer to the diagram to answer each. \overline{BE} is an angle bisector.

13. If $m\angle ABC = 86^\circ$, find $m\angle ABE$.

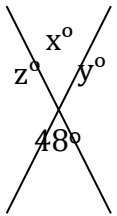
14. If $m\angle ABE = 27^\circ$, find $m\angle EBC$.

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15. One of two complementary angles is 57° greater than twice its complement. Find the measure of both angles.

Solve for the variable(s).

16.

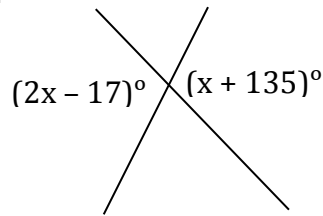


$x =$

$y =$

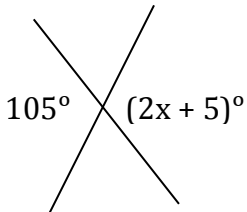
$z =$

17.



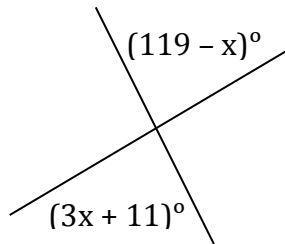
$x =$

18.



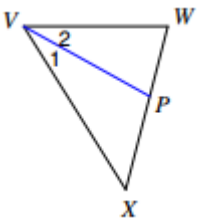
$x =$

19.



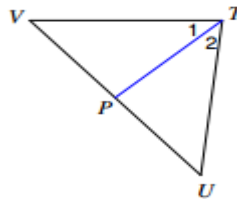
$x =$

20. Given that \overline{PV} is an angle bisector, Find x if $m\angle 2 = 1 + 28x$ and $m\angle XVW = 59x - 1$



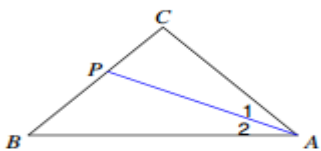
$x =$

21. Given that \overline{PT} is an angle bisector, Find $m\angle 1$, if $m\angle 1 = 7x + 7$ and $m\angle ZVTU = 16x + 4$



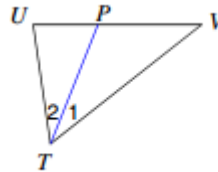
$x =$

22. Given that \overline{AP} is an angle bisector, $m\angle 2 = 22^\circ$, Find $m\angle CAB$



$x =$

23. Given that \overline{TP} is an angle bisector, $m\angle 2 = 30^\circ$, Find $m\angle 1$



$x =$

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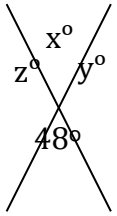
Solutions

15. One of two complementary angles is 57° greater than twice its complement. Find the measure of both angles.

$m \angle 1 = 11^\circ$
 $m \angle 2 = 79^\circ$

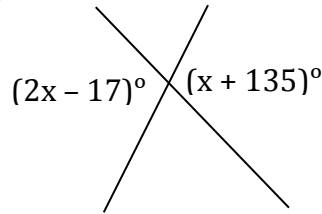
Solve for the variable(s).

16.



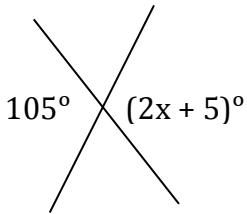
$x = 48^\circ$
 $y = 132^\circ$
 $z = 132^\circ$

17.



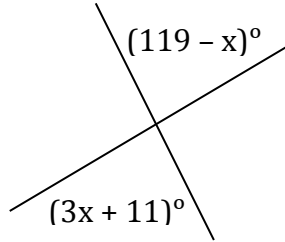
$x = 152$

18.



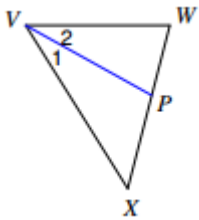
$x = 50$

19.



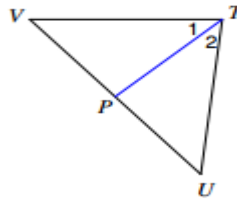
$x = 27$

20. Given that \overline{PV} is an angle bisector, Find x if $m \angle 2 = 1 + 28x$ and $m \angle XVW = 59x - 1$



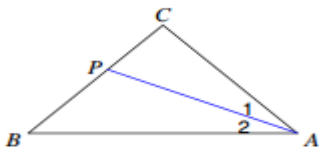
$x = 1$

21. Given that \overline{PT} is an angle bisector, Find $m \angle 1$, if $m \angle 1 = 7x + 7$ and $m \angle ZVTU = 16x + 4$



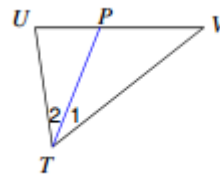
$m \angle 1 = 42^\circ$

22. Given that \overline{AP} is an angle bisector, $m \angle 2 = 22^\circ$, Find $m \angle CAB$



$x = 44^\circ$

23. Given that \overline{TP} is an angle bisector, $m \angle 2 = 30^\circ$, Find $m \angle 1$



$x = 30^\circ$