

6-2 Parallel Lines with Algebra 2

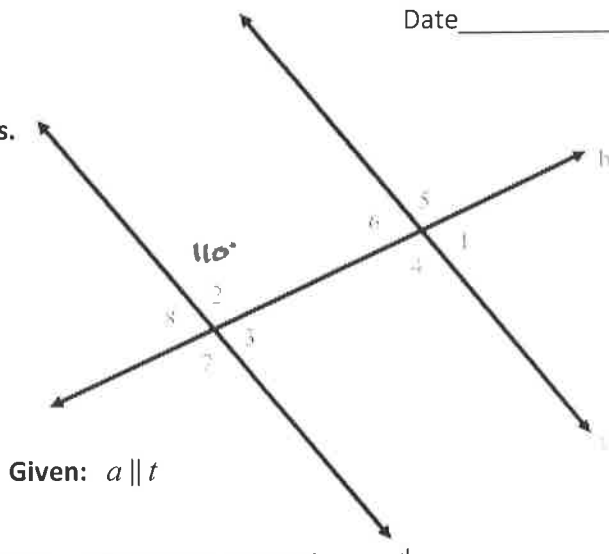
Name _____

Date _____

Use the diagram and the given conditions for each set of problems.

For #'s 1-7, If $m\angle 2 = 110^\circ$, find the following.

1. $m\angle 1 = 70^\circ$
2. $m\angle 3 = 70^\circ$
3. $m\angle 4 = 110^\circ$
4. $m\angle 5 = 110^\circ$
5. $m\angle 6 = 70^\circ$
6. $m\angle 7 = 110^\circ$
7. $m\angle 8 = 70^\circ$



Given: $a \parallel t$

For #'s 8-11, If $m\angle 5 = 14x + 5$ and $m\angle 2 = 20x - 37$, find the following. (SHOW ALL WORK)

8. $x = 7$

Corresponding Angles
 $14x + 5 = 20x - 37$
 $42 = 6x$
 $x = 7$

9. $m\angle 2 = 103^\circ$

$20(7) - 37$

10. $m\angle 5 = 103^\circ$

Corresponds to
 $\angle 2$

11. $m\angle 1 = 77^\circ$

Linear Pair
 with $\angle 5$

For #'s 12-15, If $m\angle 7 = 25(-2x + 1)$ and $m\angle 3 = -21x + 13$, find the following. (SHOW ALL WORK)

12. $x = -2$

Linear Pair

$25(-2x + 1) + (-21x + 13) = 180$
 $-50x + 25 - 21x + 13 = 180$
 $-71x + 38 = 180$
 $-71x = 142$
 $x = -2$

13. $m\angle 7 = 125^\circ$

$25(-2(-2) + 1)$
 $= 25(5)$
 $= 125$

14. $m\angle 3 = 55^\circ$

Linear Pair
 with $\angle 7$

$180 - 125 = 55$

15. $m\angle 6 = 55^\circ$

Alternate Interior
 with $\angle 3$

For #'s 16-19, If $m\angle 2 = 10x + 2$ and $m\angle 4 = 12x - 22$, find the following. (SHOW ALL WORK)

16. $x = 12$

Alt. Interior

$10x + 2 = 12x - 22$
 $24 = 2x$
 $x = 12$

17. $m\angle 2 = 122^\circ$

$10(12) + 2$
 $= 122$

18. $m\angle 4 = 122^\circ$

Alt. Int. with
 $\angle 2$

19. $m\angle 1 = 58^\circ$

Lin. Pair
 with $\angle 4$
 $180 - 122$

Use the diagram below for #'s 20-25, If $m\angle TAC = 3x - 9$ and $m\angle FAB = 5x - 13$.

20. Find x

$$5x - 13 + 3x - 9 + 3x - 9 = 90$$

$$11x - 31 = 90$$

$$11x = 121$$

$$\boxed{x = 11}$$

21. $m\angle FAB =$

$$5(11) - 13 = \boxed{42^\circ}$$

22. $m\angle BAC =$

$$3(11) - 9 = \boxed{24^\circ}$$

23. $m\angle TAC =$

$$\boxed{24^\circ}$$

24. $m\angle BAT =$

$$24 + 24 = \boxed{48^\circ}$$

25. $m\angle FAC =$

$$42 + 24 = \boxed{66^\circ}$$

