Parallels & Quadrilaterals

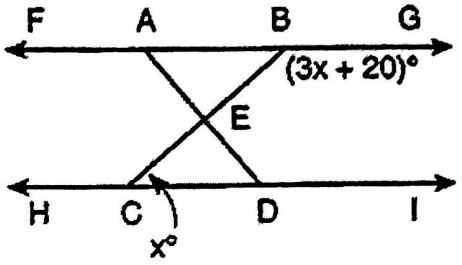
Name Mr. Morton

1. In parallelogram $CARS$, $m\angle C = 5x - 20$ and $m\angle A = 3x + 40$. Find the value of x. [1] 15 [2] 20 [3] 30 [4] 130

$5x - 20 + 3x + 40 = 180$

2. In the accompanying diagram, $\overline{FABG} \parallel \overline{HCDI}$, $\overline{BC}$ and $\overline{AD}$ intersect at E, $m\angle GBE = 3x + 20$, and $m\angle ECD = x$. What is the value of x.

[1] 10 [2] 17.5 [3] 40 [4] 50



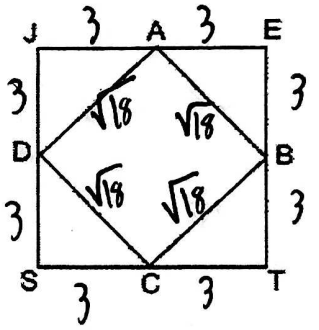
$3x + 20 + x = 180$

3. If two consecutive sides of a rhombus are represented by $3x - 6$ and $x + 14$, then the perimeter of the rhombus is [1] 10 [2] 24 [3] 70 [4] 96

$x = 10 \rightarrow 24(4)$

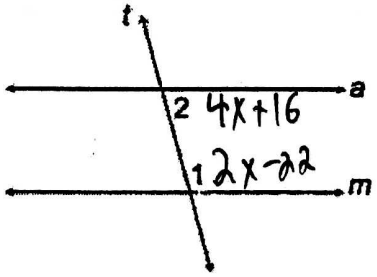
X 4. Points A, B, C, and D are midpoints of the sides of square $JETS$. If the area of $JETS$ is 36, the area of $ABCD$ is

[1] $9\sqrt{2}$ [2] $18\sqrt{2}$ [3] 9 [4] 18



5. In the diagram at the right, parallel lines a and m are cut by transversal t, $m\angle 1 = 4x + 16$ and $m\angle 2 = 2x - 22$. Find $m\angle 1$.

[1] 31° [2] 40° [3] 140° [4] 148°

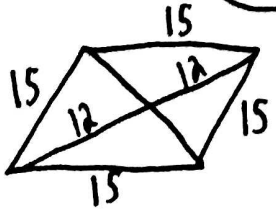


6. A quadrilateral must be a parallelogram if one pair of opposite sides is

[1] congruent, only. [2] parallel, only. [3] congruent and parallel. [4] parallel and the other pair of opposite sides is congruent.

7. The perimeter of a rhombus is 60. If the length of its longer diagonal measures 24, the length of the shorter diagonal is

[1] 20 [2] 18 [3] 15 [4] 9

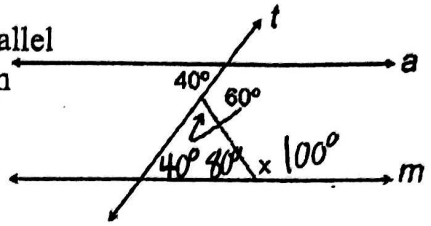


$X = 9$ $9(2) = 18$

1.	2
2.	3
3.	4
4.	4
5.	3
6.	3
7.	2

8. In the diagram at the right, lines a and m are parallel with transversal t. Find the number of degrees in the angle labeled x.

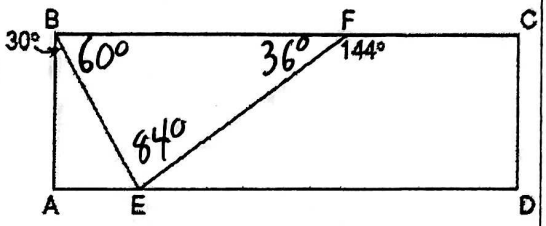
[1] 80° [2] 100° [3] 120° [4] 140°



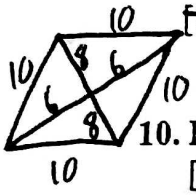
8. 2

9. In the accompanying diagram of rectangle $ABCD$, $m\angle ABE = 30$ and $m\angle CFE = 144$. Find $m\angle BEF$.

[1] 36° [2] 60° [3] 84° [4] 90°



9. 3



10. Find the perimeter of a rhombus whose diagonals measure 12 and 16.

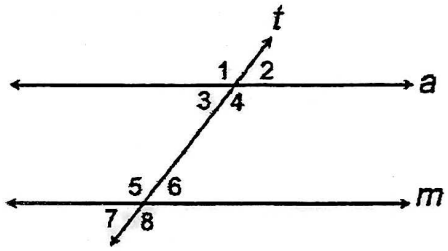
[1] 10 [2] 20 [3] 40 [4] 80

10. 3

11. In the diagram at the right, lines a and m are parallel and are cut by transversal t. Which two angles are not always congruent?

[1] $\angle 4$ and $\angle 6$ [3] $\angle 4$ and $\angle 5$

[2] $\angle 1$ and $\angle 8$ [4] $\angle 2$ and $\angle 3$



11. 1

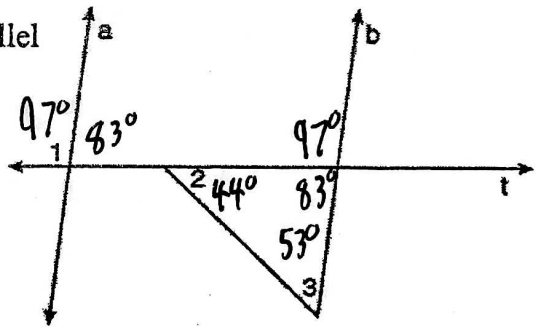
12. In the diagram at the right, line a is parallel to line b, and line t is a transversal. If $m\angle 1 = 97$ and $m\angle 2 = 44$, find $m\angle 3$.

[1] 44

[2] 53

[3] 83

[4] 97



12. 2

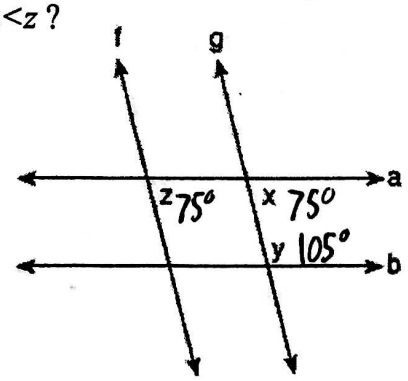
13. In the diagram below, lines f and g are parallel, and lines a and b are parallel. The $m\angle x = 75$. What is the value of $m\angle y + m\angle z$?

[1] 75

[2] 105

[3] 150

[4] 180



13. 4

14. Which statement is true about all parallelograms?

~~[1] The diagonals are congruent.~~

~~[2] The area is the product of two adjacent sides.~~

[3] The opposite angles are congruent.

~~[4] The diagonals are perpendicular to each other.~~

14. 3

15. Which property is true for all trapezoids?

[1] Only two opposite sides are parallel.

~~[2] Consecutive angles are supplementary.~~

~~[3] The base angles are congruent.~~

~~[4] All angles are equal.~~

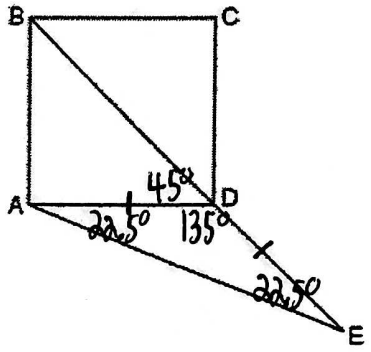
15. 1

16. In the diagram at the right, $ABCD$ is a square, diagonal $\overline{BD}$ is extended through D to E, $\overline{AD} \cong \overline{DE}$, and $\overline{AE}$ is drawn.

What is $m<DAE$?

[1] 22.5 ~~[3] 112.5~~

~~[2] 45.0~~ ~~[4] 135.0~~



16. 1

~~17.~~ Side $\overline{AB}$ of parallelogram $ABCD$ is represented by the equation $y - 7 = \frac{3}{2}x$.

Which equation could represent side $\overline{CD}$? same slop $y = \frac{3}{2}x + 7$

[1] $2y + 14 = 3x$ ~~[2] $3y - 3 = -2x$~~ ~~[3] $3y + 9 = 2x$~~ ~~[4] $y - 5 = \frac{2}{3}x$~~

$y = \frac{3}{2}x - 7$

17. ~~1~~

18. In rectangle $DATE$, diagonals $\overline{DT}$ and $\overline{AE}$ intersect at S. If $AE = 40$ and $ST = x + 5$, find the value of x.

~~[1] 10~~ [2] 15 ~~[3] 18~~ ~~[4] 20~~

$2(x+5) = 40$

18. 2

19. A parallelogram must be a rectangle if its diagonals

~~[1] bisect each~~ other. ~~[3] are perpendicular to each other.~~

~~[2] bisect the angles to which they are drawn.~~ [4] are congruent.

19. 4

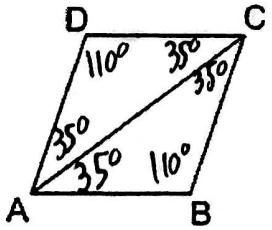
20. In the accompanying diagram of rhombus $ABCD$, $m<CAB = 35$. Find $m<CDA$.

~~[1] 35~~

~~[2] 70~~

[3] 110

~~[4] 140~~



20. 3