


10-3-2006

Measuring Angles and Segments

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Santana-Valadez, Miriam, "Measuring Angles and Segments" (2006). *Lesson Plans*. 303.
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Unit 1

1.4 Measuring Angles and Segments

DO NOW

I Complete

Find the next number in each pattern.

- | | | |
|----------------------------|-----------------------------|--------------------------------|
| 1. 17, 23, 29, 35, 41, ... | 2. 1.01, 1.001, 1.0001, ... | 3. 12, 14, 18, 24, 32, ... |
| 4. 2, -4, 8, -16, 32, ... | 5. 1, 2, 4, 7, 11, 16, ... | 6. 32, 48, 56, 60, 62, 63, ... |
| ... | ... | ... |

Practice 1-1: Mixed Exercises

- | | | | | | |
|-------|------------|----------|---------|---------|---------|
| 1. 47 | 2. 1.00001 | 3. 42 | 4. -64 | 5. 22 | 6. 63.5 |
| 7. 4 | 8. 1.0 | 9. 0.001 | 10. 0.0 | 11. 0.0 | 12. 0.0 |
-

Objective 1.4

- Find the length of a segment and the measure of an angle.

Essential Question

How do you find the length of a segment
and
the measure of an angle?

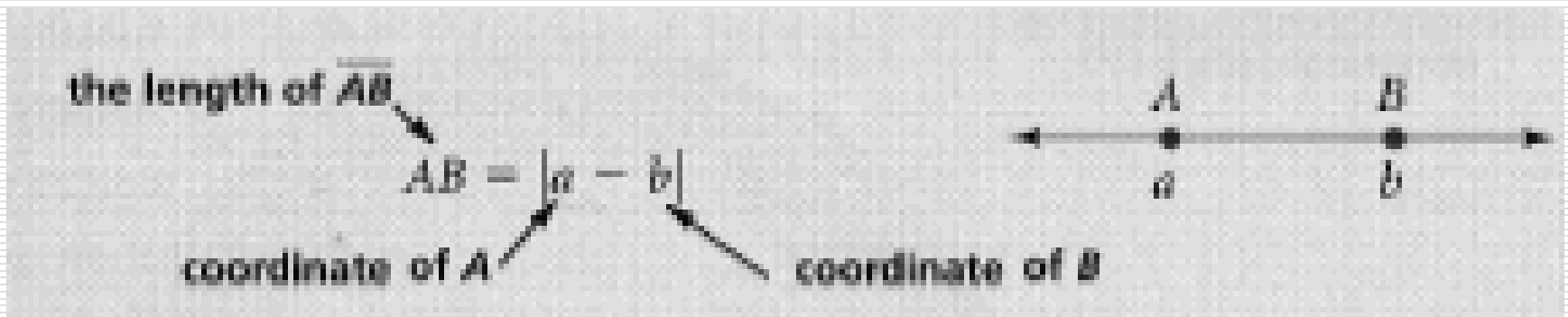
Vocabulary

- ❑ **Congruent:** Two segments with the same length. Two angles with the same measure.
 - ❑ **Angle:** Figure formed by two rays with the same endpoint called vertex.
 - ❑ **Acute:** Angle with a measure between 0 and 90 degrees.
 - ❑ **Right:** Angle with measure equal to 90 degrees.
 - ❑ **Obtuse:** Angle with a measure between 90 and 180 degrees.
 - ❑ **Straight:** Angle with measure equal to 180 degrees.
-

Postulates

Ruler Postulate

The distance between any two points is the absolute value of the difference of the corresponding numbers.



Example 1

- Find QS if the coordinate of Q is -3 and the coordinate of S is 21.

 - Is the same distance from -3 to 21 than from 21 to -3. Prove it
-

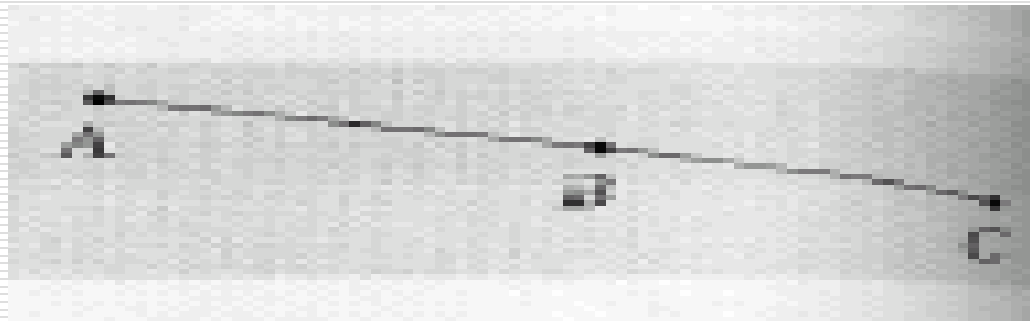
Example 1b

- Find BC if the coordinate of B is -12 and the coordinate of C is -5
 - *Explain concept of Congruent symbol for congruent, and the meaning of segments marked alike with lines.
-

Postulates

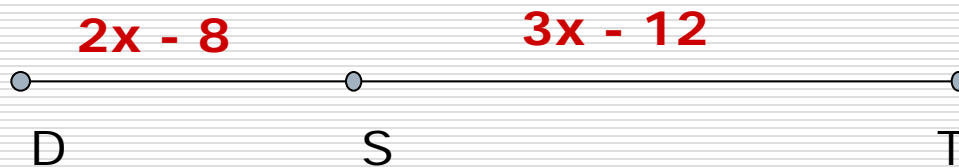
□ Segment Addition Postulate:

If three points A, B, and C are collinear and B is between A and C, then $AB + BC = AC$



Example 2

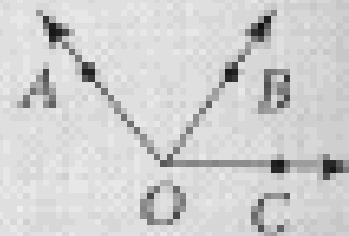
- If $DT = 60$, find the value of x . Then find DS and ST



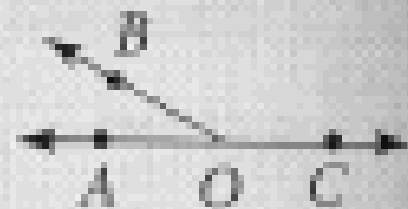
Postulates

□ Angle Addition Postulate

If point B is in the interior of $\angle AOC$, then
 $m\angle AOB + m\angle BOC = m\angle AOC$.



If $\angle AOC$ is a straight angle, then
 $m\angle AOB + m\angle BOC = 180$.



Problem 32 Page 30 TE

□ $m\angle AOC = 7x - 2,$
 $m\angle AOB = 2x + 8,$
 $m\angle BOC = 3x + 14$
Solve for x

ANSWER 12

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- $m\angle AOB = 4x - 2,$
 - $m\angle BOC = 5x + 10,$
 - $m\angle COD = 2x + 14$
- Solve for x

Answer 8

TOD

Work book

Practice 1.4 Example Exercises

Homework

Practice 1.4 Mixed Exercises

Practice 1.4

Practice 1-4: Example Exercises

1. 22 2. 25 3. 32 4. 11.7 5. 6 6. 3 7. 3 8. 6 9. 5

10. 4 11. 12 12. 7 13. 3 14. 5 15. 6 16. 2 17. 4

18. 7 19. 3 20. 8 21. 7 22. 10 23. 9 24. 9 25. 23

26. 17 27. $x = 12$; $AB = 39$, $BC = 24$ 28. $x = 8$,

$DE = 24$; $EF = 24$ 29. $y = 10$; $GH = 19$; $HI = 32$

Practice 1.4

Practice 1-4: Mixed Exercises

1.4 2.12 3.20 4.6 5.22 6. -10 or 6 7. -1 or 1

8. any three of the following $\angle O$, $\angle MOP$, $\angle POM$, $\angle 1$

9.15 10.31 11.14 12.51 13.90 14.17 15.107

16.141 17.68 18. $\angle ABD$, $\angle DBE$, $\angle EBF$, $\angle DBF$,

$\angle FBC$ 19. $\angle ABF$, $\angle DBC$ 20. $\angle ABE$, $\angle EBC$

21. $x = 11\frac{1}{2}$; $AB = 31$; $BC = 31$ 22. $x = 35\frac{1}{2}$;

$AB = 103$; $BC = 103$
