

# Unit 1

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## 1.4 Measuring Angles and Segments

# DO NOW

## I Complete

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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. 1.000001 | 9. 1.0000001 | 10. 0.001 | 11. 48 | 12. 63.5 |
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## Objective 1.4

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- 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?

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# Vocabulary

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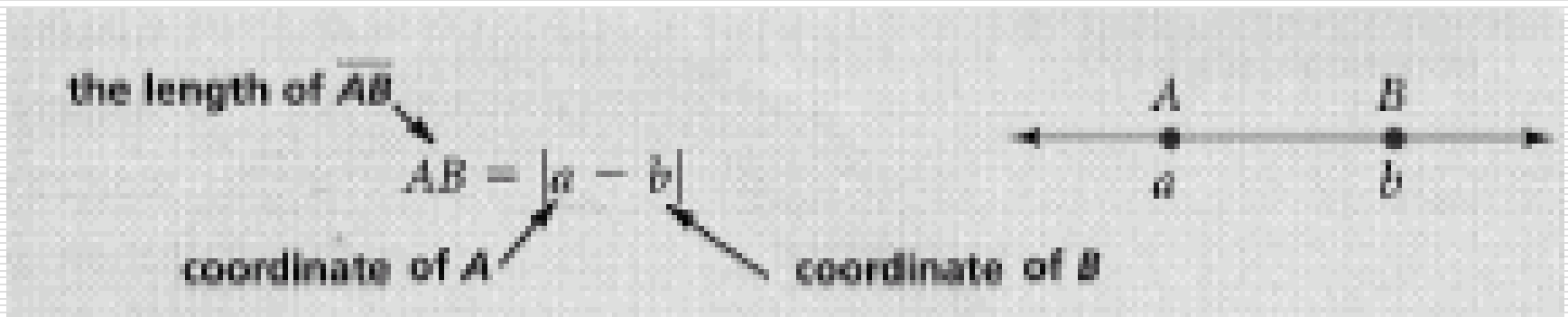
- ❑ **Congruent:** Two segments with the same length. Two angles with the same measure.
  - ❑ **Angle:** Figure formed by two rays with the same endpoint called vertex.
  - ❑ **Acute:** Angle with a measure between 0 and 90 degrees.
  - ❑ **Right:** Angle with measure equal to 90 degrees.
  - ❑ **Obtuse:**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

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## Ruler Postulate

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



# Example 1

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- 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
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# Example 1b

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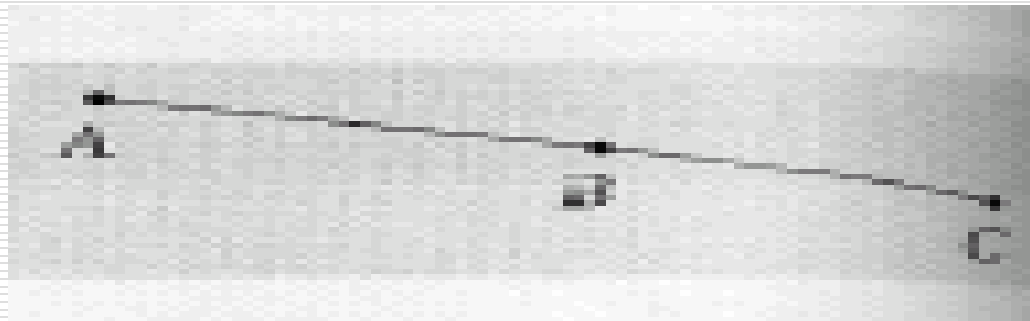
- Find BC if the coordinate of B is -12 and the coordinate of C is -5
  - \*Explain concept of Congruent symbol for congruent, and the meaning of segments marked alike with lines.
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# Postulates

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## □ Segment Addition Postulate:

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

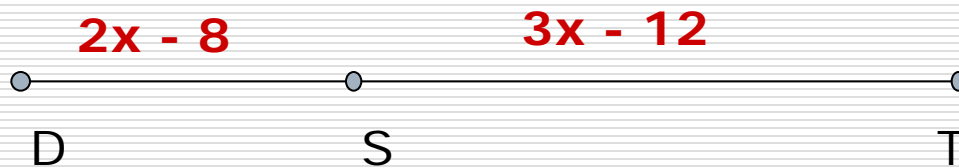




# Example 2

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

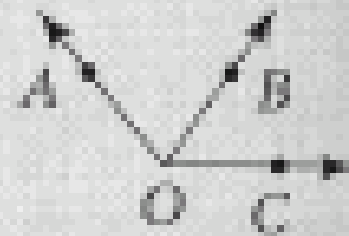


# Postulates

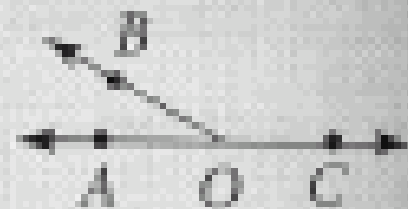
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## □ Angle Addition Postulate

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  
 $m\angle AOB + m\angle BOC = 180$ .



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

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# TOD

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Work book

Practice 1.4 Example Exercises

Homework

Practice 1.4 Mixed Exercises

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# Practice 1.4

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## 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

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## 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.  $x = 35\frac{1}{2}$ ;

$AB = 103$ ;  $BC = 103$

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