NAME _____ DATE _____

Study Guide

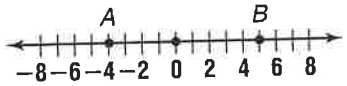
Measuring Segments

To find the distance between two points, there are two situations to consider.

Distance on a Number Line

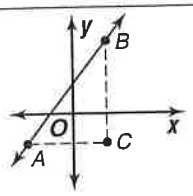
$AB = |x_2 - x_1|$

Example: Find AB on the number line shown below.



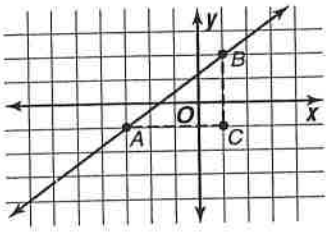
$AB = |5 - (-4)|$
$= |9|$
$= 9$

Distance in the Coordinate Plane



Pythagorean Theorem:
$(AB)^2 = (AC)^2 + (BC)^2$

Example: Find the distance from $A(-3, -1)$ to $B(1, 2)$ using the Pythagorean Theorem.



$AC = |1 - (-3)|$ or 4
$BC = |2 - (-1)|$ or 3

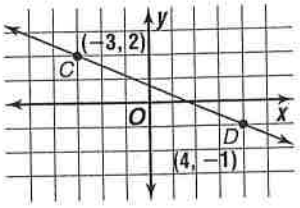
$(AB)^2 = 4^2 + 3^2$
$= 16 + 9$ or 25

$AB = \sqrt{25}$
$= 5$

Distance Formula:

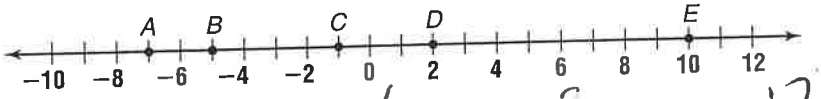
$CD = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

Example: Find the distance from $C(-3, 2)$ to $D(4, -1)$ using the distance formula.



$CD = \sqrt{(-3 - 4)^2 + [2 - (-1)]^2}$
$= \sqrt{(-7)^2 + 3^2}$
$= \sqrt{49 + 9}$
$= \sqrt{58}$
≈ 7.62

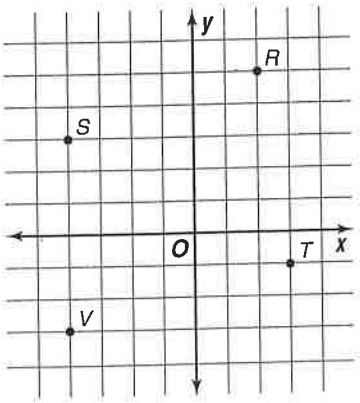
Refer to the number line below to find each measure.



1. AC 6
2. BC 4
3. CD 3
4. AE 17
5. AB 2
6. DE 8
7. BE 15
8. CE 11

Refer to the coordinate plane at the right to find each measure. Round your measures to the nearest hundredth.

9. RS 6.32
10. RT 6.08
11. RV 10.00
12. VS 6.00
13. VT 7.28
14. ST 8.06



Refer to the coordinate plane at the right to find each measure. Round your answers to the nearest hundredth.

7. *AB* 5.83

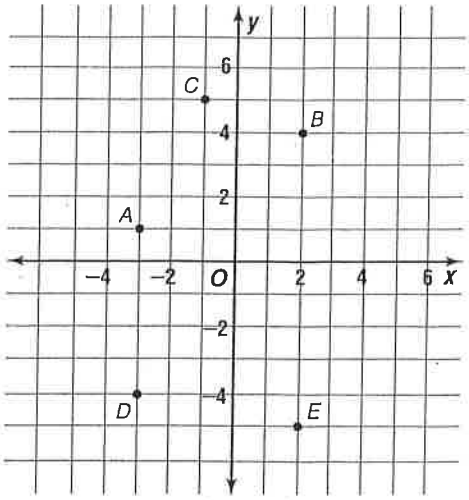
8. *BD* 9.43

9. *AE* 7.81

10. *CE* 10.44

11. *AD* 5.00

12. *BE* 9.00



Practice Refer to the number line below to find each measure.

16. *AE* 10

17. *BD* 4

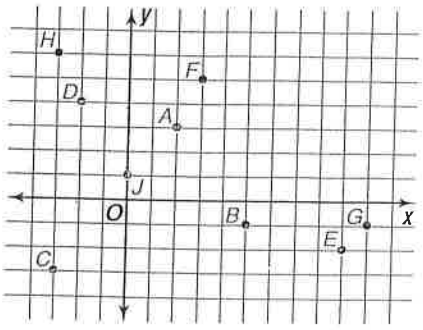
18. *EC* 6

19. *EG* 5

20. *FC* 10

21. *CA* 4

Refer to the coordinate plane at the right to find each measure. Round your answers to the nearest hundredth.



26. *BG* 5.00

27. *HC* 9.00

28. *GH* 14.76

29. *EG* 1.41

30. *FJ* 5.00

31. *JC* 5.00

Write a mathematical sentence to compare each pair of measures.

32. *GB* and *GF* $GB < GF$

33. *FJ* and *JC* $FJ = JC$

34. *AC* and *AD* $AC > AD$