

1.3 Exercises

FOR EXTRA HELP:

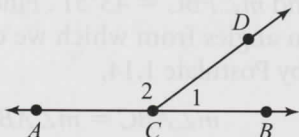


Student's Solutions Manual



Addison-Wesley Math Tutor Center

Consider the line \overleftrightarrow{AB} with point C between A and B and ray \overrightarrow{CD} as shown below. Use this figure and answer *true* or *false* in Exercises 1–20.



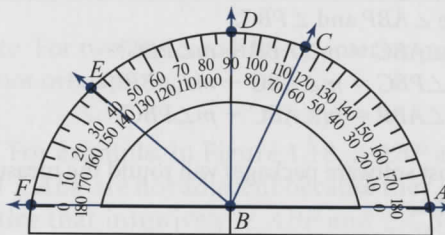
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|---|---|
| 1. Point B is on \overline{AC} . | 2. Point A is on \overline{CB} . |
| 3. Point C is on \overline{AB} . | 4. Point B is on \overline{AC} . |
| 5. If $AC = 10$ cm and $CB = 13$ cm, then $AB = 23$ cm. | 6. If $AB = 30$ cm and $AC = 12$ cm then $CB = 18$ cm. |
| 7. \overline{CA} and \overline{AC} are the same. | 8. $\angle 1$ is another name for $\angle DCB$. |
| 9. $\angle ACD$ is another name for $\angle 2$. | 10. C is the endpoint of \overline{BC} . |
| 11. A and B are endpoints of \overline{AB} . | 12. A and C are endpoints of \overline{AC} . |
| 13. The vertex of $\angle 1$ is C . | 14. The vertex of $\angle DCA$ is A . |
| 15. $\angle ACB$ is a right angle. | 16. $\angle BCA$ is a straight angle. |
| 17. $\angle 1$ and $\angle 2$ are adjacent angles. | 18. $\angle 1$ and $\angle 2$ are complementary angles. |
| 19. $\angle DCB$ is an acute angle. | 20. $\angle 1$ is the supplement of $\angle DCA$. |

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Exercises 21–26 refer to the figure below. Give the measure of each angle.



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|------------------|------------------|------------------|
| 21. $\angle ABC$ | 22. $\angle EBF$ | 23. $\angle ABD$ |
| 24. $\angle ABE$ | 25. $\angle FBC$ | 26. $\angle CBE$ |

Find the complement of each angle in Exercises 27–30.

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| 27. 18° | 28. 64° | 29. $36^\circ 40'$ | 30. $71^\circ 45' 20''$ |
|----------------|----------------|--------------------|-------------------------|

Find the supplement of each angle in Exercises 31–34.

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| 31. 74° | 32. 136° | 33. $57^\circ 35'$ | 34. $110^\circ 35' 40''$ |
|----------------|-----------------|--------------------|--------------------------|

35. What angle has the same measure as its complement?
 36. What angle has the same measure as its supplement?
 37. What is the complement of the supplement of an angle measuring 130° ?
 38. What is the supplement of the complement of an angle measuring 50° ?

- 39. What is the complement of the complement of an angle measuring 25° ?
- 40. What is the supplement of the supplement of an angle measuring 160° ?
- 41. What is the measure of an angle whose supplement is four times its complement?
- 42. What is the measure of an angle whose supplement is three times its complement?

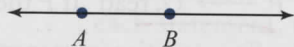
State whether each angle given in Exercises 43–51 is straight, right, acute, or obtuse.

- 43. 65°
- 44. 115°
- 45. 180°
- 46. 90°
- 47. The complement of an angle measuring 42° .
- 48. The supplement of an angle measuring 42° .
- 49. The complement of any acute angle.
- 50. The supplement of any obtuse angle.
- 51. The supplement of a right angle.

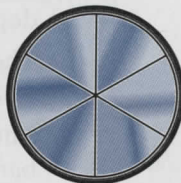
In Exercises 52–55, $\angle ABP$ and $\angle PBC$ are adjacent angles. Find the measure of $\angle ABC$.

- 52. $m\angle ABP = 62^\circ 20'$ and $m\angle PBC = 31^\circ 50'$
- 53. $m\angle ABP = 49^\circ 55'$ and $m\angle PBC = 57^\circ 15'$
- 54. $m\angle ABP = 27^\circ 25' 41''$ and $m\angle PBC = 52^\circ 51' 35''$
- 55. $m\angle ABP = 120^\circ 38' 22''$ and $m\angle PBC = 18^\circ 41' 54''$

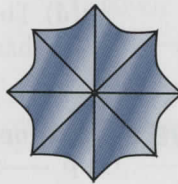
For Exercises 56–61, refer to the figure below.



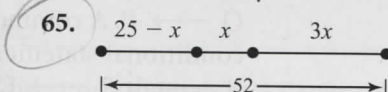
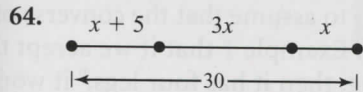
- 56. On \overline{AB} , how many points are located 5 cm from point A?
- 57. On \overline{AB} , how many points are located 5 cm from point B?
- 58. On \overline{AB} , how many points are located 5 cm from point A?
- 59. On \overline{AB} , how many points are located 5 cm from point B if $AB = 10$ cm?
- 60. On \overline{AB} , how many points are located 5 cm from point A if $AB = 10$ cm?
- 61. On \overline{AB} , how many points are located 5 cm from point B?
- 62. In the given figure of a stained-glass window, if the angles between the panes of glass are equal, what is the measure of each angle?



- 63. In the given top-down view of an umbrella, if the angles between the spokes are all equal, what is the measure of each angle?



In Exercises 64–65, find the value of x in each figure.



- 66. If $m\angle A = (5y)^\circ$, $m\angle B = (y + 6)^\circ$, and $\angle A$ and $\angle B$ are complementary, find y .
- 67. If $m\angle R = (30 - y)^\circ$, $m\angle S = (9y - 10)^\circ$, and $\angle R$ and $\angle S$ are supplementary, find y .

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