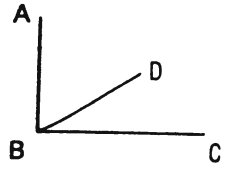
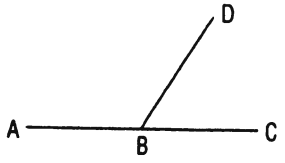
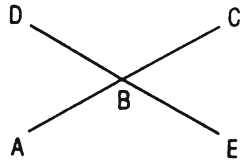
Name Solutions

3.4 Angle Relationships

MATHPOWER™ *Eight*, pp. 86–87

Complementary angles add to 90°.	**Supplementary angles** add to 180°.	**Opposite angles** are equal.
		
∠ABD + ∠DBC = 90°	∠ABD + ∠DBC = 180°	∠ABD = ∠CBE

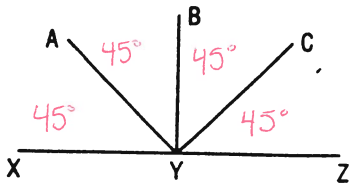
State the measure of the angle that is complementary to each of the following.

1. 48° 42°
2. 19° 71°
3. 65° 25°
4. 13° 77°
5. 45° 45°
6. 52° 38°

State the measure of the angle that is supplementary to each of the following.

7. 41° 139°
8. 96° 84°
9. 125° 55°
10. 80° 100°
11. 160° 20°
12. 90° 90°

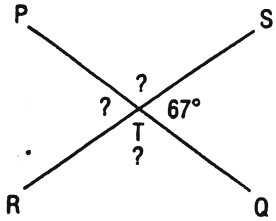
13. Measure each angle and state 3 pairs of complementary angles.



∠XYA, ∠AYB, ∠BYC, & ∠CYZ are all complementary

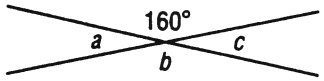
Determine the missing angle measures.

14.



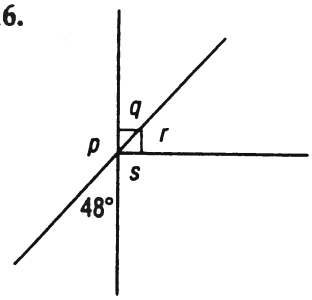
∠PTS = 113°
∠PTR = 67°
∠RTQ = 113°

15.



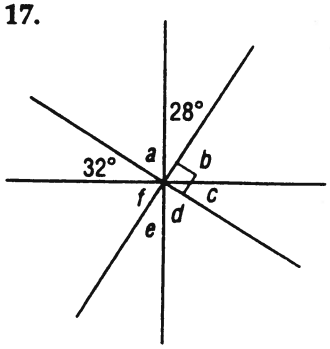
∠a = 20°
∠b = 160°
∠c = 20°

16.



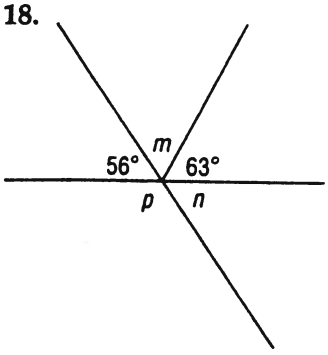
∠p = 132°
∠q = 48°
∠r = 42°
∠s = 90°

17.



∠a = 62°
∠b = 58°
∠c = 32°
∠d = 62°
∠e = 28°
∠f = 58°

18.



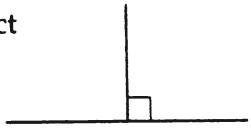
∠m = 61°
∠n = 56°
∠p = 124°

Name Solutions

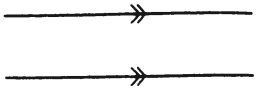
3.5 Parallel and Perpendicular Lines

MATHPOWER™ *Eight*, pp. 88–89

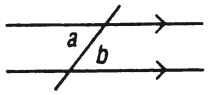
Perpendicular lines intersect to form right angles.



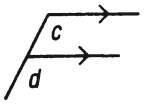
Parallel lines are lines in the same plane that do not intersect.



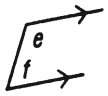
A **transversal** is a line or line segment that crosses 2 or more lines.
When a transversal crosses 2 parallel lines, the alternate angles are equal, the corresponding angles are equal, and the co-interior angles add to 180°.



$\angle a = \angle b$

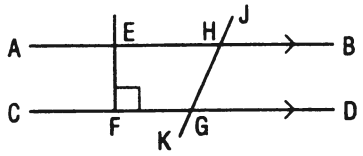


$\angle c = \angle d$



$\angle e + \angle f = 180°$

In the diagram, name the following.



1. 2 pairs of perpendicular lines
$\overline{AB}$ ⊥ $\overline{EF}$ also, $\overline{CD}$ ⊥ $\overline{EF}$

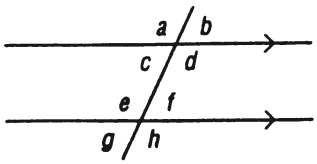
2. 1 pair of parallel lines
$\overline{AB}$ ∥ $\overline{CD}$

3. 2 pairs of alternate angles
$\angle AHK$ & $\angle JGD$ also, $\angle BHK$ & $\angle JGC$

4. 2 pairs of corresponding angles
$\angle BHK$ & $\angle DGK$ also, $\angle AHK$ & $\angle CGK$

5. 2 pairs of co-interior angles
$\angle BHK$ & $\angle JGD$ also, $\angle AHK$ & $\angle JGC$

Use the diagram to help complete each statement.



6. $\angle a$ and $\angle d$ are opposite angles.

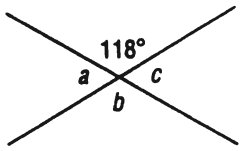
7. $\angle d$ and $\angle e$ are alternate angles.

8. $\angle c$ and $\angle g$ are corresponding angles.

9. $\angle d$ and $\angle h$ are corresponding angles.

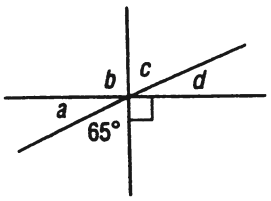
Calculate the missing measures.

10.



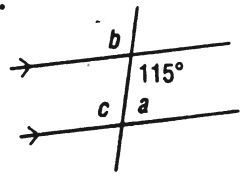
$\angle a = 62°$
$\angle b = 118°$
$\angle c = 62°$

11.



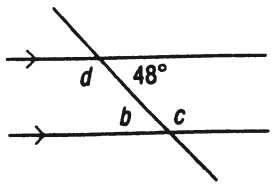
$\angle a = 25°$
$\angle b = 90°$
$\angle c = 65°$
$\angle d = 25°$

12.



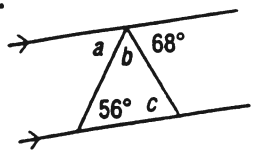
$\angle a = 65°$
$\angle b = 115°$
$\angle c = 115°$

13.



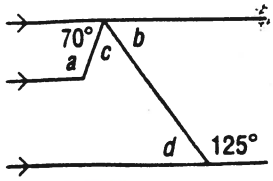
$\angle b = 48°$
$\angle c = 132°$
$\angle d = 132°$

14.



$\angle a = 56°$
$\angle b = 56°$
$\angle c = 68°$

15.



$\angle a = 110°$
$\angle b = 55°$
$\angle c = 55°$
$\angle d = 55°$