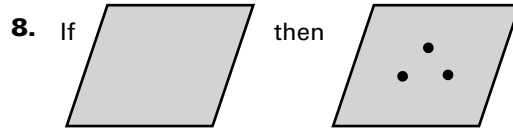
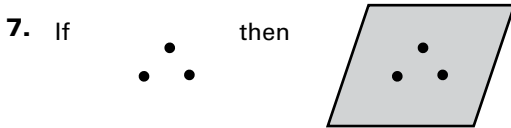
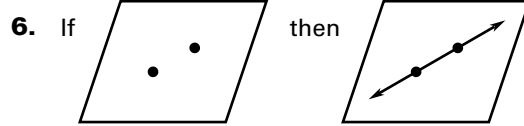
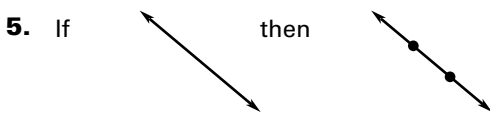


LESSON 2.4 Practice A
For use with pages 98–104

Which postulate can be represented by the given if-then statement?

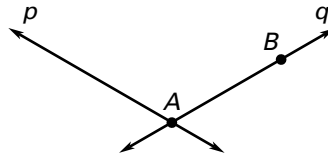
1. If any two points are considered, then there is exactly one line through the points.
2. If any three noncollinear points are considered, then there is exactly one plane through all three points.
3. If a plane is considered, then the plane contains at least three noncollinear points.
4. If a line is considered, then the line contains at least two points.

State the postulate illustrated by the diagram.



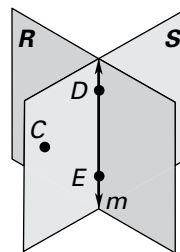
Use the diagram to write an example of the postulate.

9. Postulate 5
10. Postulate 6
11. Postulate 7



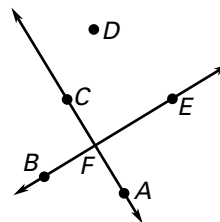
Use the diagram to write an example of the postulate.

12. Postulate 8
13. Postulate 9
14. Postulate 10
15. Postulate 11



Can the statement be assumed to be true from the diagram?

16. $B, C,$ and D are collinear.
17. $\vec{AC} \perp \vec{BE}$
18. $\angle CFE$ and $\angle AFE$ are a linear pair.
19. $\angle CFE \cong \angle AFE$



LESSON 2.4 **Practice A** *continued*
For use with pages 98–104

Sketch a diagram showing the given information.

20. $\overleftrightarrow{PQ} \perp \text{plane } A$

21. \overleftrightarrow{RS} intersects plane B at point T .

Can the statement be assumed to be true from the diagram? Explain.

22. $\overleftrightarrow{EF} \perp \text{plane } S$

23. $\overleftrightarrow{EF} \perp \overleftrightarrow{CG}$

24. D , C , and H are collinear.

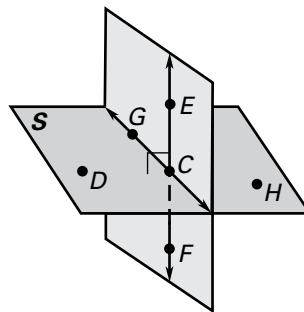
25. E , C , and F are collinear.

26. \overleftrightarrow{EF} intersects plane S at point C .

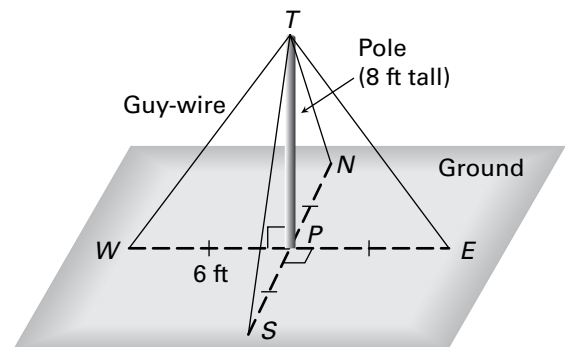
27. $\overleftrightarrow{EF} \perp \overleftrightarrow{DH}$

28. $\overleftrightarrow{EF} \perp \overleftrightarrow{CH}$

29. $\overleftrightarrow{CG} \perp \overleftrightarrow{CD}$



30. **Volleyball Net** Your class is installing two permanent net poles to use for suspending a volleyball net. Each pole is constructed by placing a 10-foot wood pole into a 2-foot hole and cementing the pole in place. Four guy-wires are used to stabilize the pole until the cement sets. The diagram shows how the guy-wires attach to the ground and to the top of the pole.



- What relationship exists between the pole and the ground?
- Can you assume that $\angle WPS$ and $\angle SPE$ are a linear pair?
- What can you assume about the distance from the bottom of the pole to each guy-wire attachment at the ground?
- Is $\angle TPE$ a right angle? *Explain.*

Lesson 2.3, continued

6.	Converse			Inverse		
	p	q	$q \rightarrow p$	$\sim p$	$\sim q$	$\sim p \rightarrow \sim q$
	T	F	T	F	T	T

Contrapositive		
$\sim q$	$\sim p$	$\sim q \rightarrow \sim p$
T	F	F

7.	Converse			Inverse		
	p	q	$q \rightarrow p$	$\sim p$	$\sim q$	$\sim p \rightarrow \sim q$
	F	F	T	T	T	T

Contrapositive		
$\sim q$	$\sim p$	$\sim q \rightarrow \sim p$
T	T	T

Lesson 2.4

Practice Level A

1. Postulate 5 2. Postulate 8 3. Postulate 9
 4. Postulate 6 5. Postulate 6 6. Postulate 10
 7. Postulate 8 8. Postulate 9 9. Through the two points A and B , there exists exactly the one line, q . 10. Line q contains at least the two points A and B . 11. Lines p and q intersect in exactly the one point A . 12. Through the three noncollinear points C , D , and E , there exists only the one plane S . 13. Plane S contains at least the three noncollinear points C , D , and E .

14. *Sample answer:* The two points D and E lie in plane R , so the line m that contains them lies in R .

15. The intersection of planes R and S is line m .

16. no 17. no 18. yes 19. no

20. *Sample answer:* 21. *Sample answer:*



22. yes; directly indicated by right angle symbol

23. yes; $\vec{EF} \perp$ plane S , so it is \perp to every line in S that it intersects 24. no; can't assume collinearity without the line drawn

25. yes; all 3 points are on one line

26. yes; it is obvious in diagram

27. no; can't assume that \vec{DH} intersects \vec{EF}

28. yes; $\vec{EF} \perp$ to every line in plane S that it intersects 29. no; can't assume these lines \perp without a rt. angle marked

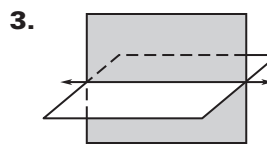
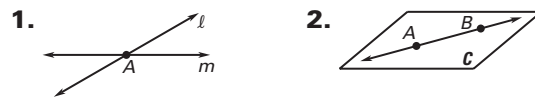
30. a. The pole is perpendicular to the ground.

b. yes c. The corresponding segments are marked \cong , so the distances are all 6 ft.

d. yes; because the pole is perpendicular to the ground, it is perpendicular to each line passing through point P .

Practice Level B

1–3. Sample sketches are given.



4. Postulate 8: Through any three noncollinear points there exists exactly one plane.

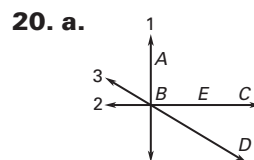
5. Postulate 5: Through any two points there exists exactly one line. 6. Postulate 11: If two planes intersect, then their intersection is a line.

7. Postulate 10: If two points lie in a plane, then the line containing them lies in the plane.

8. No. Through any two points there exists exactly one line. 9. Yes. Points A and B could lie on the line intersecting two planes.

10. Yes. Take point A and any two points on line k and you can form a plane through those three points that contains all of line k . 11. Yes. The plane that runs from the front of the room to the back of the room through points A and B contains both points and a point on the front wall.

12. true 13. false 14. false 15. false 16. true
 17. true 18. false 19. false



b. building B c. right d. 2 e. Yes, because $\angle DBE$ is acute and Building E is due west of Building C.

Practice Level C

