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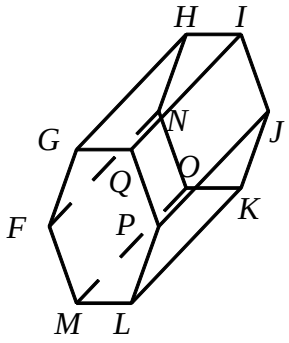
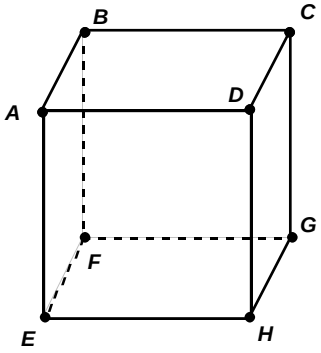
Chapter 3 Review

1. Name a pair of parallel planes.



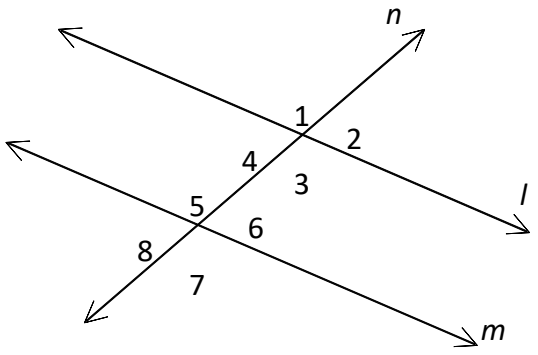
2. Use the figure below.



For the cube shown, $\overleftrightarrow{AD}$ and $\overleftrightarrow{HG}$ are _____.

[A] perpendicular lines [B] oblique lines [C] parallel lines [D] skew lines

3. In the figure, $\measuredangle 6$ and $\measuredangle 3$ are _____.



[A] consecutive interior angles [B] corresponding angles

[C] alternate exterior angles [D] alternate interior angles

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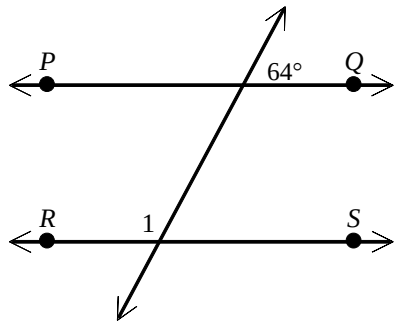
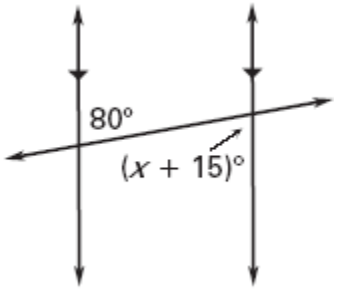
4. Find $m\measuredangle 1$ in the figure below. $\overleftrightarrow{PQ}$ and $\overleftrightarrow{RS}$ are parallel.

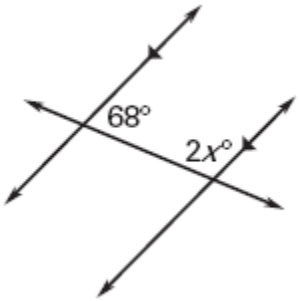


Find the value of *x*.

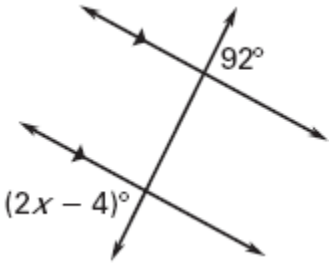
5.



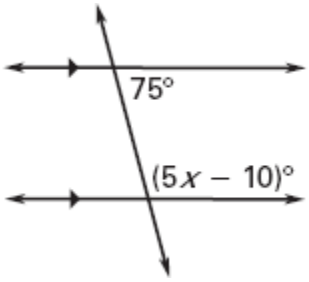
6.



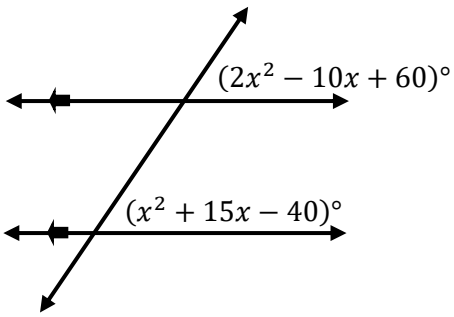
7.



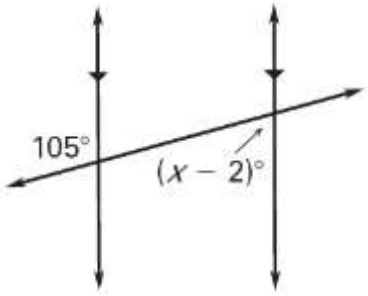
8.



9.



10.



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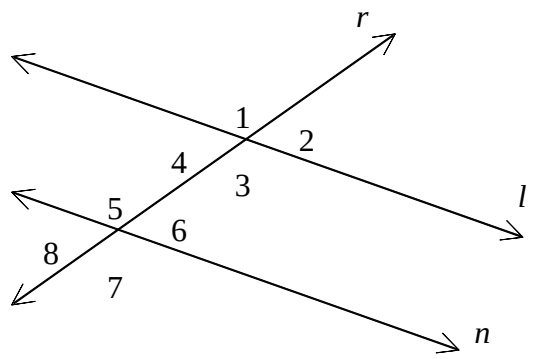
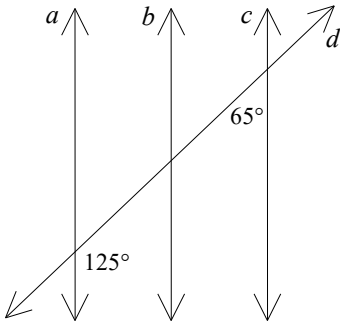
11. In the figure, $l \parallel n$ and *r* is a transversal. Which of the following is not necessarily true?



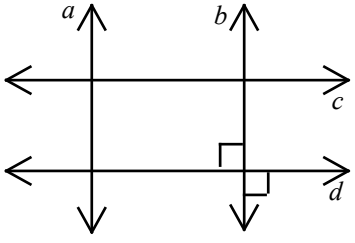
[A] $\measuredangle 8 \cong \measuredangle 2$ [B] $\measuredangle 5 \cong \measuredangle 3$ [C] $\measuredangle 7 \cong \measuredangle 4$ [D] $\measuredangle 2 \cong \measuredangle 6$

12. Which lines, if any, can be proved parallel given the following diagram? For each conclusion, provide the justification.



Which lines, if any, can be proved parallel given the following diagram? For each conclusion, provide the justification.

13.



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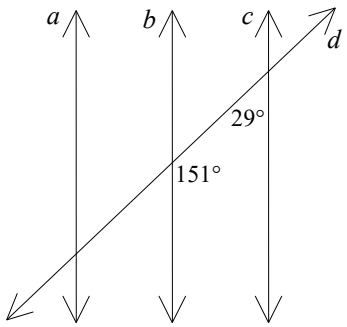
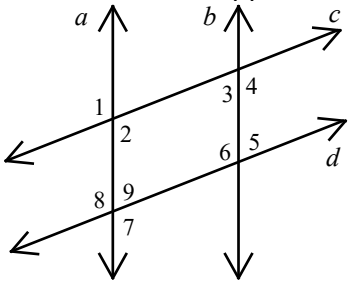
14. Which lines, if any, can be proved parallel given the following diagram? For each conclusion, provide the justification.

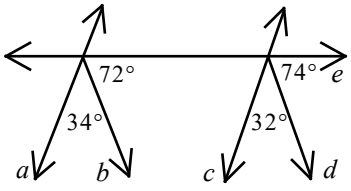


15. Which lines, if any, must be parallel based on the given diagram and information? Give the justification for each conclusion.

Given: $\measuredangle 2$ is supplementary to $\measuredangle 9$



16. Which lines, if any, can be proved parallel given the following diagram?



17. Find the slope of the line passing through the points $A(5, -1)$ and $B(-8, 3)$.

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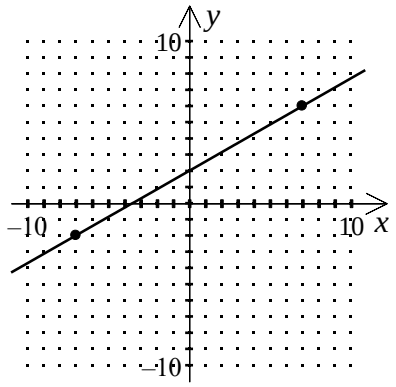
18. Find the slope of the line.



19. What is the slope of a line parallel to the line $5x + 3y = 7$? (Rewrite in y=mx+b form)

20. Write the slope-intercept form of the equation of the line passing through the point (–3, 1) and parallel to the line $y = 3x - 3$.

21. Write the equation of the line that is parallel to $y = \frac{1}{3}x - 3$ and passes through the point (6, 2).

22. A line L_1 has slope $-\frac{2}{7}$. State whether the line that passes through (3, –4) and (–4, –2) is parallel or perpendicular to line L_1.

23. Which best describes the relationship between the lines with equations (Rewrite in y=mx+b form)

$$-5x - 7y = 1 \text{ and } -20x - 28y = 4$$

[A] perpendicular [B] same line [C] neither parallel nor perpendicular [D] parallel

24. Which best describes the relationship between the line that passes through (–2, 6) and (3, 8) and the line that passes through (7, 5) and (5, 10)?

25. Decide whether **Line 1** and **Line 2** are parallel, perpendicular, or neither.
Line 1 passes through (–3, –7) and (–7, –5)
Line 2 passes through (–5, –2) and (–7, –6)

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26. A line L_1 has slope 3. The line that passes through which of the following pairs of points is perpendicular to L_1?

[A] (–9, –2) and (–6, –1) [B] (–5, –6) and (–4, –3)

[C] (2, –6) and (–4, –3) [D] (–3, –5) and (–6, –4)

27. Write the slope-intercept form of the equation of the line passing through the point (3, 3) and perpendicular to the line $y = \frac{2}{5}x + 5$.

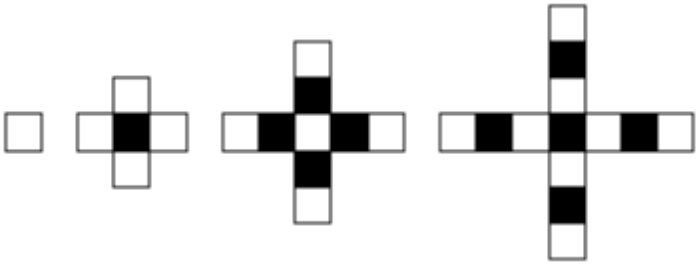
28. A line is perpendicular to $y = \frac{x}{3} - 2$ and passes through point (6, 2). Write its equation.

29. If the pattern indicated below is continued, what would be the total number of cubes in the 7th stage of the pattern?

1, 1+4=5, 1+4+9=14

a. 130 b. 64 c. 8 d. 140

30. If the pattern were continued, what would be the ratio of the number of unshaded squares to the number of shaded squares in the next figure in the pattern?



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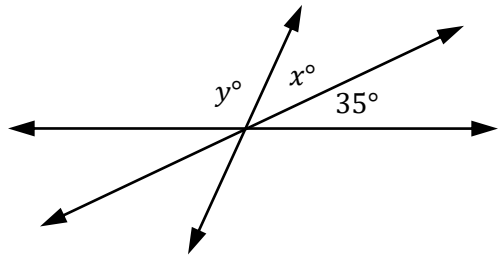
Use inductive reasoning to find the next two numbers in each pattern.

31. 16, 18, 20, 22, __, __

32. 2, 4, 8, 16, __, __

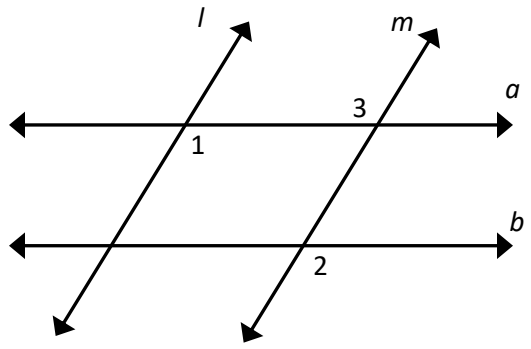
33. Three lines intersect in the figure shown. What is the value of x + y?



Complete the two-column proof.

Given: $l \parallel m, \measuredangle 1 \cong \measuredangle 2$

Prove: $a \parallel b$



Statements	Reasons
1. $l \parallel m$	1._____
2. $\measuredangle 1 \cong \measuredangle 2$	2._____
3. $\measuredangle 1 \cong \measuredangle 3$	3._____
4. $\measuredangle 2 \cong \measuredangle 3$	4._____
5. $a \parallel b$	5._____

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Chapter 3 Review Answers

1. $Plane\ \ FML \parallel Plane\ \ NOK$
2. D
3. A
4. 116
5. 65
6. 56
7. 48
8. 23
9. 5
10. 77
11. C
12. None
13. None
14. $b \parallel c$, Consecutive Interior Angles Converse
15. $c \parallel d$, Consecutive Interior Angles Converse
16. $a \parallel c$, Angle Addition and Corresponding Angles Converse
17. $\frac{-4}{13}$
18. $\frac{4}{7}$
19. $\frac{-5}{3}$
20. $y = 3x + 10$
21. $y = \frac{1}{3}x$
22. Parallel
23. B
24. Perpendicular
25. Perpendicular
26. D
27. $y = \frac{-5}{2}x + \frac{21}{2}$
28. $y = -3x + 20$
29. D
30. $\frac{9}{8}$
31. 24, 26
32. 32, 64
33. $145°$

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Statements	Reasons
1. $l \parallel m$	1. Given
2. $\measuredangle 1 \cong \measuredangle 2$	2. Given
3. $\measuredangle 1 \cong \measuredangle 3$	3. Alternate Interior Angles
4. $\measuredangle 2 \cong \measuredangle 3$	4. Transitive Property
5. $a \parallel b$	5. Alternate Exterior Angles Converse