1. ."My dad is in the navy, and he says that food is great on submarines," said Diana. "My mom is a pilot," added Jill, "and she says that airline food is notoriously bad." "My mom is an astronaut trainee," said Julio, "and she says that astronauts' food is the worst imaginable." Diana concludes "I bet no life exists beyond Earth! As you move farther from the surface of Earth, food tastes worse. At extreme altitudes, food must taste so bad that no creature could stand to eat. Therefore, no life exists out there." What do you think of Diana's reasoning? Is it inductive or deductive?

2. If Shawn notices three people with backpacks get on the bus and sit on the right side. The next two people do not have backpacks sit on the left side of the bus. He concludes that every person with a backpack will sit on the right side and people without backpacks will sit on the left side. What kind of reasoning is he using and is this a good example of that reasoning?

3. In complete sentences, explain what inductive reasoning is. Make sure to include the three steps.

In exercises 4 and 5, find the next two terms in the sequence.

4. $7, 2, 5, -3, 8, -11,$ __?__ , __?__

5. $A, 4, D, 9, H, 16, M, 25,$ __?__ , __?__

In exercises 6 and 7, draw the next shape in the pattern.

6.

7.

In exercises 8-11, find the nth term and the 20th term in the sequence.

8.

n	1	2	3	4	5	6	......	n	20
f(n)	-2	1	4	7	10	13	......		

9.

n	1	2	3	4	5	6	....	n	20
f(n)	1	3	6	10	15	21	.....		

10.

n	1	2	3	4	5	6	....	n	20
f(n)	10	30	56	88	126	170	....		

11.

n	1	2	3	4	5	6	...	n	20
f(n)	6	3	0	-3	-6	-9	...		

In exercises 12-14, find the measure of each lettered angle.

12.

a b
c $60°$

13.

$51°$ a $52°$
b c d

14.

$60°$
b c
a

d $65°$
e f

h i
g $55°$
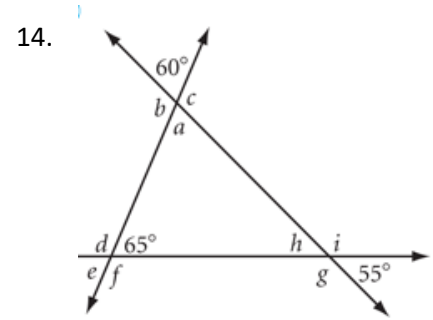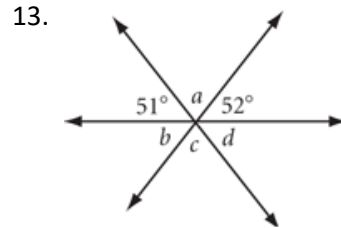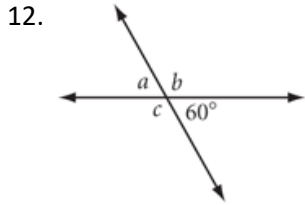
In exercises 15 and 16, find the solutions to the following problems

15.

$4x - 30$

x

16.   If $r \parallel s$, find y.

r

$7y - 4$

s

$216 - 2x$

$3x + 16$
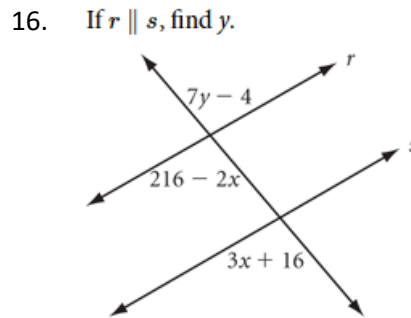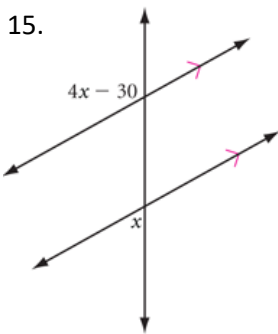
In exercises 17 and 18, find the solutions to the following problems.

17.   The box is wrapped with two strips of ribbon that wrap around
the entire box. What length of ribbon is needed to decorate the box?

8 cm
10 cm
4 cm
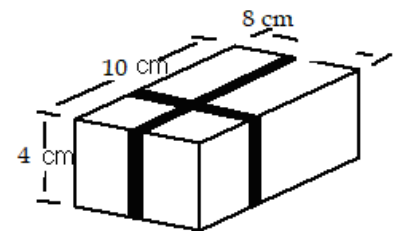
18.   At one point in the race, Ironman was 13 feet behind the Hulk and 21 feet ahead of Captain America.
Captain America was trailing Thor by 26 feet. The Hulk was ahead of Thor by how many feet?

In exercises 19-24, fill in the blanks with conclusions or justifications.
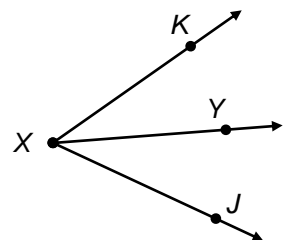
19. Given: m∠ABC = m∠*DEF*

Conclusion: ∠ *ABC* ≅ ∠DEF

Justification: _____

20. Given: $\overrightarrow{XY}$ bisects ∠KXJ
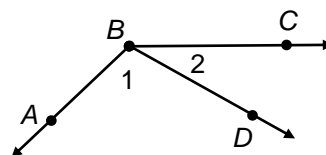
Conclusion: _____

Justification: _____
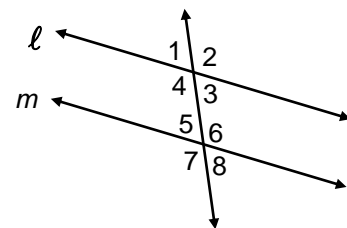
21. Given: ∠*ABC* at the right.

Conclusion: _____

Justification: _____Angle Addition Postulate_____

22. Given: ℓ // *m*

Conclusion: ∠2 ≅ ∠7
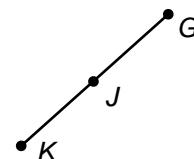
Justification: _____

23. Given: *J* is the midpoint of $\overline{KG}$

Conclusion: _____

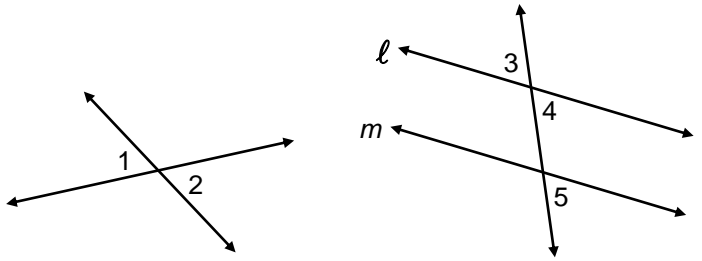Justification: _____

24. Given: ∠1 and ∠2 are a linear pair.

Conclusion: _____∠1 and ∠2 are supplementary_____

Justification: _____

In problems 25 and 26, write the proof.

25. Given: $\ell \; // \; m$, $\angle 1 \cong \angle 5$

Prove: $\angle 2 \cong \angle 3$

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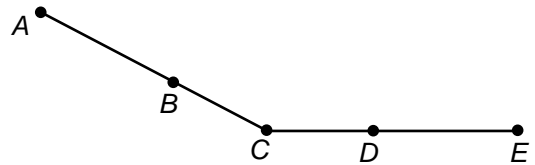<tr><td align="center">Conclusions</td><td align="center">Justifications</td></tr>
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26. Given: $\overline{AB} \cong \overline{DE}$

Prove: $AB + CD = CE$

<table>
<tr><td align="center">Conclusions</td><td align="center">Justifications</td></tr>
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