Which lines or line segments are parallel? Justify your answers.

1.

2.

3.
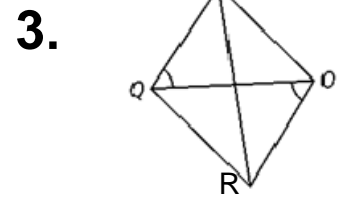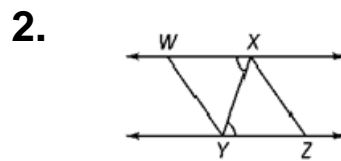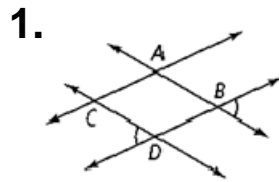
Find the value of *x* for which *g* || *h*.

4.

126°   *g*

(2x + 16)°   *h*

5.

g
(6x)°
(20x − 2)°
h

6.

g
(3x + 6)°   *h*
(4x − 18)°
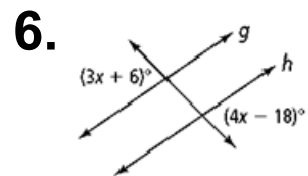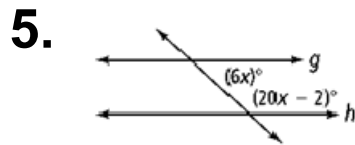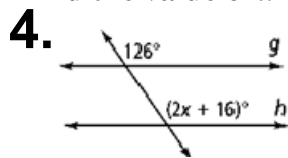
1. An artist is building a mosaic.
The mosaic consists of the repeating pattern shown at the right.
What must be true of *a* and *b* to ensure that
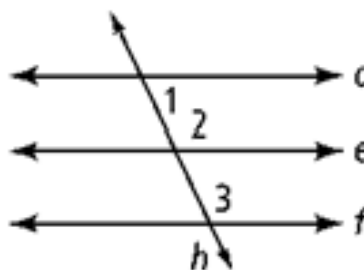the sides of the mosaic are parallel?
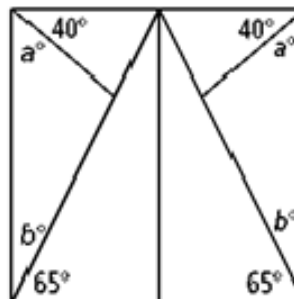
2. Complete this proof.
   Given: *d* || *e*, *e* || *f*
   Prove: *d* || *f*

Statements	**Reasons**
1. *d* || *e*	*1. Given*
2. ∠1 is supplementary to ∠2	2.
3.	3. Defn of supplementary angles
4. *e* || f	4.
5. m∠2 = m∠3	5.
6.	6. substitution property
7. ∠1 is supplementary to ∠3	7.
8. *d* || *f*.	8.

Conclusion:

1. **Write the equation of the line that passes through the point (3, 7) and is perpendicular to the line**
$$y = \frac{2}{5}x - 1.$$

2. **Write the equation of the line that passes through the point (3, 0) and is parallel to the line**
$$2x + y = 3.$$

3. **Write the equation of the perpendicular bisector of the line that passes through (8, − 2) and (6, 4).**