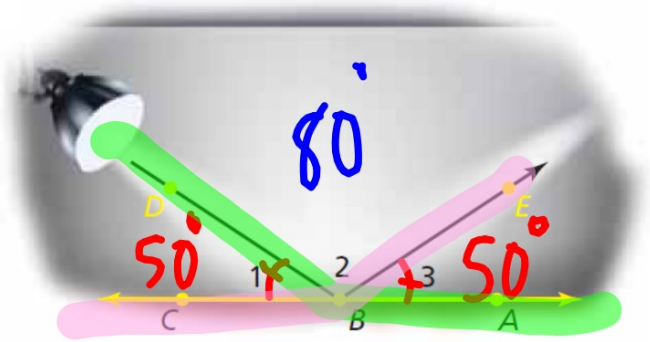
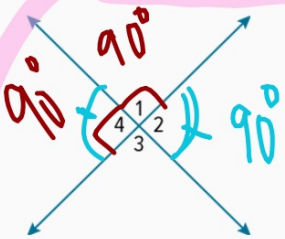
You reflect the beam of a spotlight off a mirror lying flat on a stage, as shown. Determine whether $m\angle DBA = m\angle EBC$.



Statements	Reasons
1. $m\angle 1 = m\angle 3$	Given
2. $m\angle DBA = m\angle 3 + m\angle 2$	Angle Addition Postulate
3. $m\angle DBA = m\angle 1 + m\angle 2$	Substitution Property of Equality
4. $m\angle 1 + m\angle 2 = m\angle EBC$	Angle Addition Postulate
5. $m\angle DBA = m\angle EBC$	Transitive Property of Equality

Given: <1 = <4

Prove: ∠1 and ∠2 are right angles.



Proof:

Statements	Reasons
1. ∠1 ≅ ∠4	1. Given
2. ∠2 ≅ ∠4	2. vertical angles
3. ∠4 ≅ ∠2	3. symmetric
4. <1 = <2	4. transitive
5. <1 & <2 are a linear pair	5. Def. of linear pair
6. <1 & <2 are right angles	6. If two congruent angles form a linear pair, then they are right angles.

1 4 = 2

180°

If 2 ≅ <'s form a — pair th <'s