Science 8

Practice Test: Lenses & Mirrors (Op 3-6)

Name:
Date:
Block:

1. Determine whether the following objects are transparent, translucent or opaque:

a) pencil:

b) smoke:

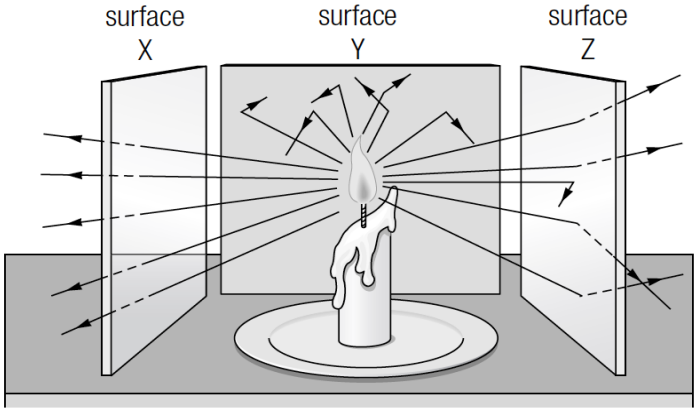
c) mirror:

d) wax paper:

e) car window:

f) contact lenses:

2. Looking at the picture below, describe how the light behaves for each of the surfaces in the diagram above:

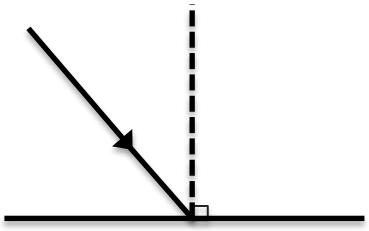


Surface:	Answers:	Descriptors:
X	_____ _____ _____	A. Absorbs light B. Allows all light to pass through C. Scatters light D. Opaque E. Translucent F. Transparent G. Objects seen clearly on other side H. Objects not seen distinctly on other side I. Objects not viewable on other side
Y	_____ _____ _____	
Z	_____ _____ _____	

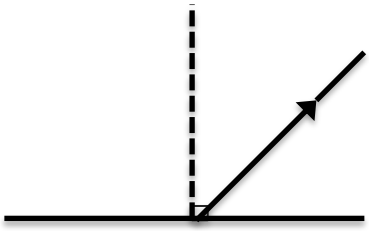
3. In the space below, state the Law of Reflection:

4. Label the following diagrams with:
    - Normal
    - Mirror
    - Incident ray or reflected ray
    - Angle of incidence or angle of reflection
    - Measurement of angle of incidence or angle of reflection.

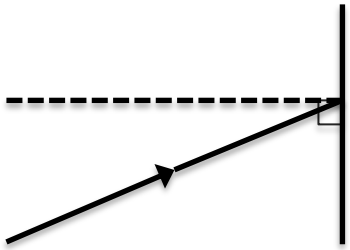
A.



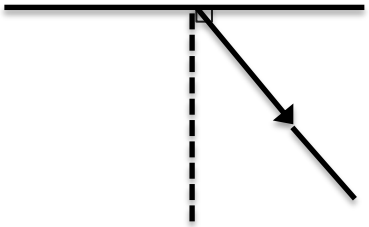
B.



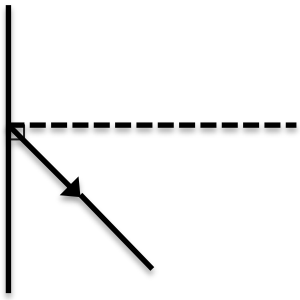
C.



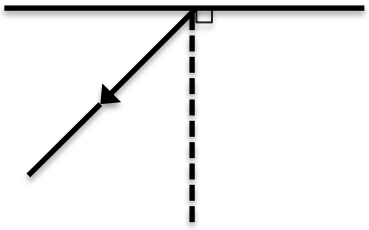
D.



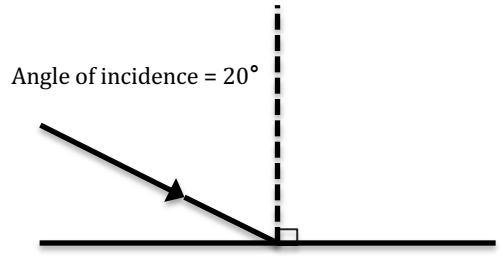
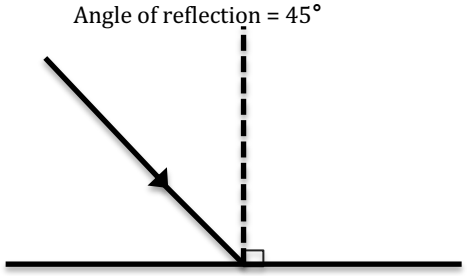
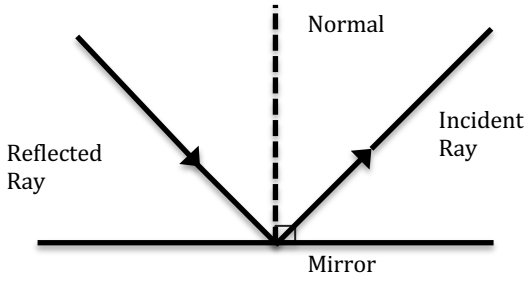
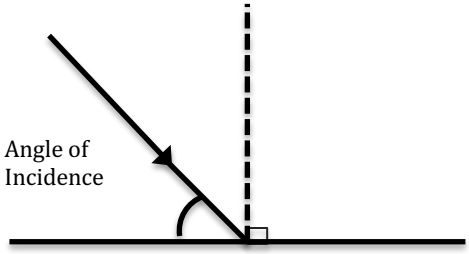
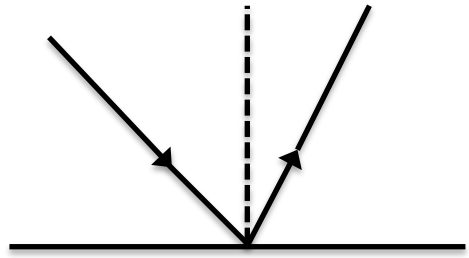
E.



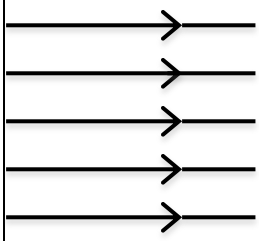
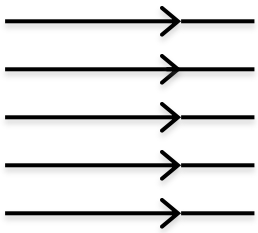
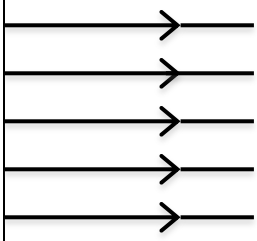
F.



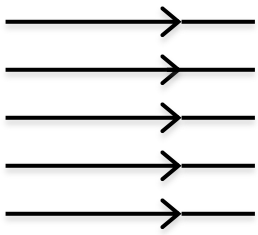
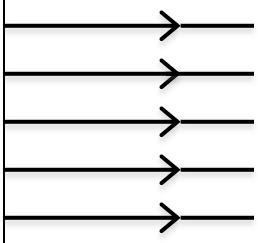
5. What is wrong with this diagram? In the right column, explain what the error is and provide a correction.

A.  	
B.  	
C.  	
D.  	
E. 	

6. In the space below, sketch what happens when the light rays hit the following mirrors.

Plane mirror	**Concave mirror**	**Convex mirror**
		
Circle one of the following:		
Converge Diverge Neither	Converge Diverge Neither	Converge Diverge Neither
When object is **close**, the image looks:		
Upright Upside down	Smaller Larger No change	Upright Upside down	Smaller Larger No change	Upright Upside down	Smaller Larger No change
When object is **far**, the image looks:		
Upright Upside down	Smaller Larger No change	Upright Upside down	Smaller Larger No change	Upright Upside down	Smaller Larger No change

7. In the space below, sketch what happens when the light rays hit the following lenses.

Concave lens	**Convex lens**
	
Circle one of the following:	
Converge Diverge Neither	Converge Diverge Neither

When object is **close**, the image looks:			
Upright Upside down	Smaller Larger No change	Upright Upside down	Smaller Larger No change
When object is **far**, the image looks:			
Upright Upside down	Smaller Larger No change	Upright Upside down	Smaller Larger No change

8. Match the term with the descriptor. Each descriptor can only be used once.

Term	Descriptor
_____ lens	A. Equal to angle of reflection for a plane mirror
_____focal length	B. A piece of transparent material that bends light
_____ convex lens	C. Light rays spreading apart
_____ concave lens	D. Material that scatters light
_____diverging	E. The distance between the lens and the focal point
_____ converging	F. A lens that is thicker in the middle than at the edge
_____ upright	G. How an image appears when looking at a faraway object through a convex lens
_____ upside down	H. Material that curves inwards and reflects light
_____ concave mirror	I. Point where the converging light rays meet
_____ convex mirror	J. Material that is flat and smooth and reflects light
_____ plane mirror	K. How an image appears when looking through a concave lens
_____ opaque	L. Measured between the refracted ray and the normal
_____ transparent	M. A material that reflects light
_____ translucent	N. Material that allows all light rays to pass through
_____ focal point	O. Light rays coming together
_____ normal	P. An imaginary line that passes through the materials at a right angle
_____ angle of refraction	Q. A lens that is thinner in the middle than at the edge
_____ angle of reflection	R. Angle between reflected ray and the normal
_____ angle of incidence	S. Material that absorbs or reflects light
_____ ray model of light	T. Material that curves outwards and reflects light
_____ mirror	U. A representation of how light travels when it hits different material

9. Do shadows increase or decrease when an object is closer to a source of light? Use a ray diagram to confirm your answer below.

10. Draw what happens when light moves from **air to water** and answer the questions.
    - **Label** the incident ray, refracted ray, angle of incidence, angle of refraction and normal line. **Include arrows** to show direction

Diagram:	a) Circle the material that is more dense: *Air* *Water* b) As light moves from air to water it: *Speeds up* *Slows down* c) As light moves from air to water it bends _____ the normal: *towards* *away from*
air water	

11. Draw what happens when light moves from **water to air.**
    - **Label** the incident ray, refracted ray, angle of incidence, angle of refraction and normal line. **Include arrows** to show direction

Diagram:	a) Circle the material that is more dense: *Air* *Water* b) As light moves from water to air it: *Speeds up* *Slows down* c) As light moves from water to air it bends _____ the normal: *towards* *away from*
water air	