

- 53 4. A student is trying to design a way to use a spotlight to light up two paintings. What should the student think about?
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- 49 (A) The size of the paintings
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- 47 (B) The angle between the spotlight and the paintings
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- 45 (C) How far from the paintings she should put the spotlight
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- 42 (D) All of the above
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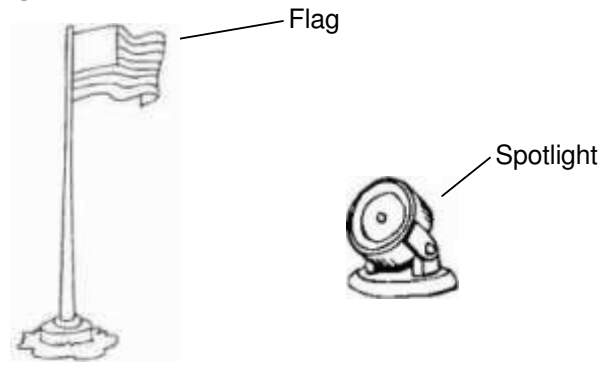
- 39 5. At work an optical engineer is MOST LIKELY to:
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- 37 (A) Construct bridges.
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- 35 (B) Improve lenses for a telescope.
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- 33 (C) Repair TV screens when they break.
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- 31 (D) Design an obstacle course for race cars.
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- 28 6. A flashlight is turned on. What happens?
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- 26 (A) Light stays in the flashlight.
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- 24 (B) Light moves from the flashlight and goes through any objects in its path.
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- 21 (C) Light moves from the flashlight in straight lines until it hits another object.
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- 18 (D) Light does not move from the flashlight unless there is something for it to hit.
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- 14 7. Which of the following objects reflects light?
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- 12 (A) Blue teapot (C) Black wall
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- 10 (B) White wall (D) All of the above
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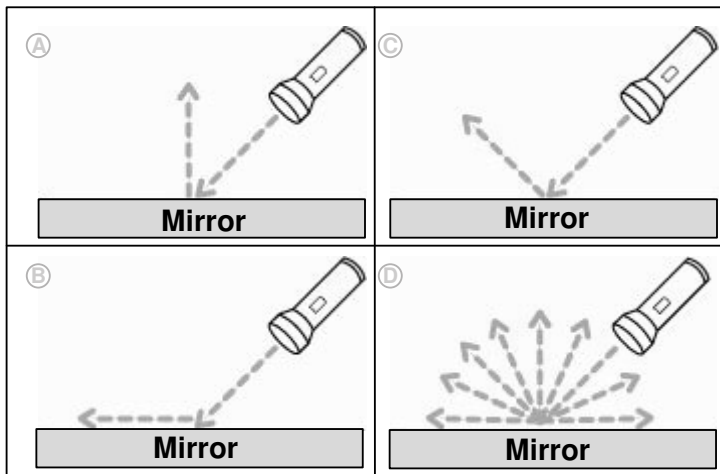
- 7 8. At work, an optical engineer might:
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- 5 (A) Design tunnels. (C) Install wiring in houses.
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- 3 (B) Improve cameras. (D) Fix headlights on trucks.
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9. A student is trying to use a spotlight to light up a flag. The light is not bright enough. What can she do to make the light on the flag brighter?

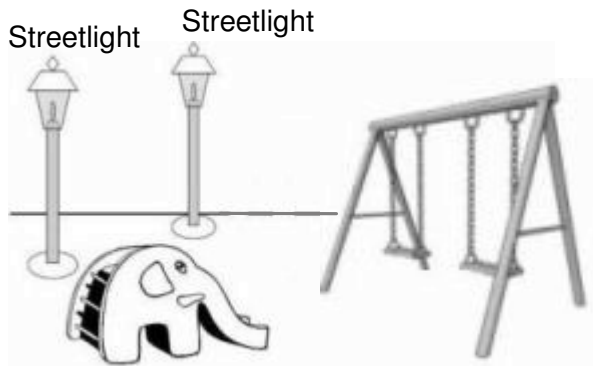


- (A) Move the spotlight closer to the flag.
- (B) Move the spotlight to the left of the flag.
- (C) Move the spotlight farther away from the flag.
- (D) You can't make the light on the flag any brighter.
10. Which of the following would an optical engineer MOST LIKELY work on?
- (A) Something that helps you see things better
- (B) Something that helps you go places quickly
- (C) Something that makes computers run faster
- (D) An optical engineer would not work on any of these things
11. Which of the following will transmit light?
- (A) White wall (C) Aluminum foil
- (B) Wood block (D) Glass window
12. What would be BEST to use to get light to shine around a corner?
- (A) Black paper (C) Aluminum foil
- (B) White paper (D) Grey plastic bag

13. Which picture BEST shows what happens to light when it shines on a mirror?



14. Someone is improving a lighting system for a playground. If he makes the streetlights taller, what will happen to the light on the playground?



- (A) The streetlights will get brighter.
- (B) The light on the playground will be less bright.
- (C) Less of the playground will be covered with light.
- (D) Nothing will happen to the light on the playground.

15. The picture below shows a girl standing in the sunlight. Which of the following best explains why she creates a shadow?

- (A) She bends light from the Sun.
- (B) She absorbs light from the Sun.
- (C) She reflects light onto the ground.
- (D) She changes the color of the sunlight hitting the ground.



16. What happens if you shine light on a window?

- (A) All of the light goes through the window.
- (B) All of the light bounces off of the window.
- (C) Light fills the air on one side of the window.
- (D) Some of the light goes through the window and some bounces off of the window.

17. What happens when someone turns on a light bulb in a room?

- (A) Light stays just around the bulb.
- (B) Light fills all parts of the room equally.
- (C) Light travels in straight lines from the light bulb out in all directions.
- (D) Light travels around things in the room to shine on all parts of the room.

18. What might an optical engineer think about for his or her job?

- (A) Where to put traffic lights
- (B) Where lightning comes from
- (C) How to package eyeglasses
- (D) How light gets from one place to another

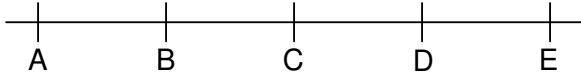
19. What is an optical engineer LEAST LIKELY to work on for her job?

- (A) Video cameras
- (B) Lights on vehicles
- (C) CD and DVD players
- (D) An optical engineer would not work on any of these things

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53 Use the diagram below to answer question 20 and 21.

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20. Where should you hold a flashlight so that it shines on the mirror and then on Position A?

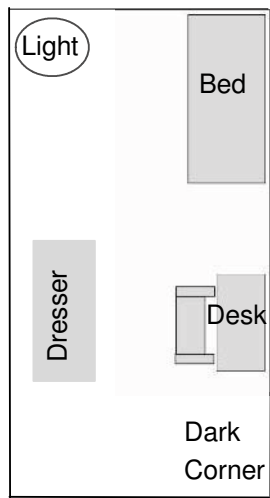
- (A) Position B (C) Position D
- (B) Position C (D) Position E

21. If you shine a flashlight into the mirror from Position D, where would the reflected light appear?

- (A) Position A (C) Position C
- (B) Position B (D) Position E

22. A student is designing a way to light a dark corner of her bedroom. The light is on the opposite side of the room from the dark corner. What could she do to light up the dark corner?

- (A) Cover the walls with shiny wallpaper.
- (B) Move the light closer to the middle of the room.
- (C) Paint the walls white to reflect more light to all parts of the room.
- (D) All of these ideas would work.



23. If an object reflects light:

- (A) It must be a mirror. (C) It must be a solid object.
- (B) It can NOT refract light. (D) It must also absorb light.

24. Which of these items will absorb light?

- (A) A mirror
- (B) A clear block of plastic
- (C) A sheet of metal painted black
- (D) All of these items absorb some light

25. You use some mirrors and a flashlight to light up a painting in a room. Which of these set-ups will make the light on the painting the brightest?

(A)

(B)

(C)

(D) The light on the painting will be the same brightness in each of these set-ups.

Question 15 adapted from MCAS, Gr 5, 2008.

PLEASE DO NOT WRITE IN THIS AREA



[SERIAL]