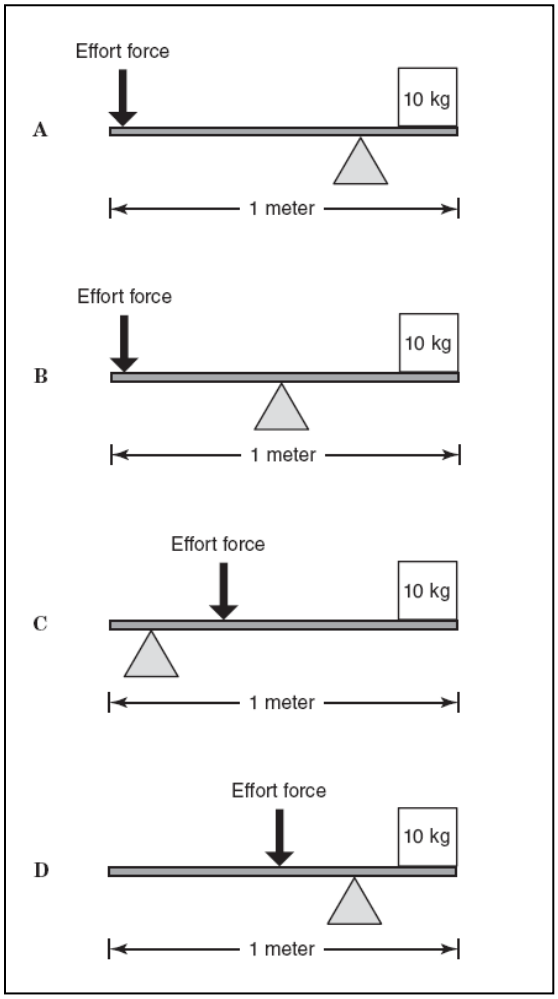
Name _____ Block _____

# Objective 5 Assignment From 9-28 Practice TAKS Test

1. Which lever would require the least force to lift a box with a mass of 10 kilograms?




_____ Explain your answer:

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2. Sunlight strikes a polarizing filter with horizontal slits. What will happen when the light that passes through this filter strikes a second polarizing filter with vertical slits?

**A** The second filter will block all of the light that passes through the first filter.
**B** The second filter will allow light to vibrate in all directions.
**C** The second filter will allow light to vibrate only in a vertical direction.
**D** The light that passes through the second filter will vibrate only in a horizontal direction.

_____ Explain your answer:

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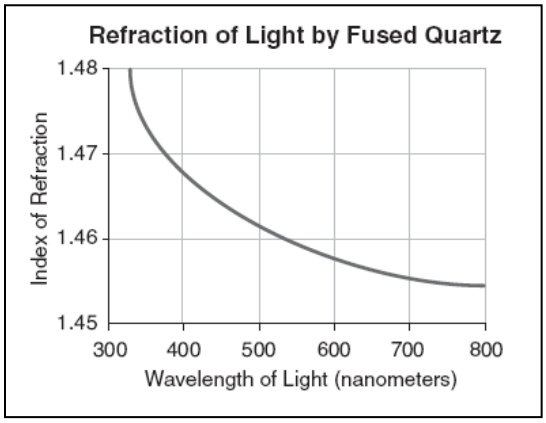


3. What does the graph indicate about the relationship between the index of refraction of fused quartz and the light being refracted?
**A** The index of refraction does not depend on the wavelength of the light.
**B** The frequency of the light has no effect on the index of refraction.
**C** Light with short wavelengths is refracted less than light with long wavelengths.
**D** The index of refraction increases as the frequency of the light increases.
_____ Explain your answer:

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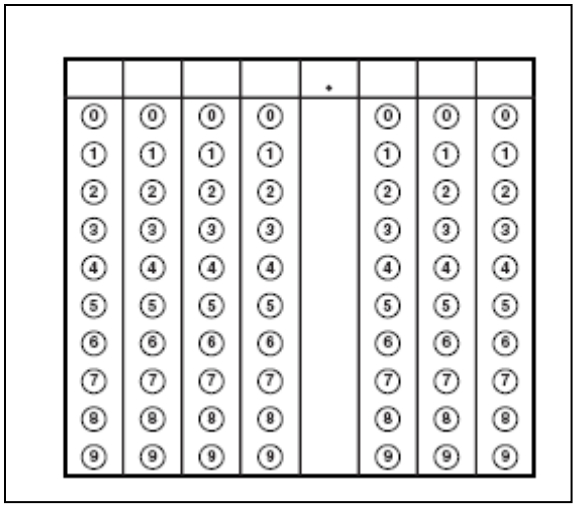
4. A student throws a tennis ball with a mass of $5.7 \times 10^{-2}$ kilograms into the air. What is the downward force on the ball due to gravity?
**A** 9.8 N
**B** 0.56 N
**C** 0.17 N
**D** 0.057 N
Show your work in the space below:

5. A machine lifts a crate 6.0 meters in 3.5 seconds. The weight of the crate is 490 Newtons. How many watts of power does the machine use to lift the crate? Record and bubble in your answer.
Show your work in the space below:



6. A 5.0-kilogram stone falls off a cliff from a height of 20 meters. If the effects of air resistance are ignored, what will be the stone's kinetic energy the instant it strikes the ground?
**A** 100 joules
**B** 490 joules
**C** 980 joules
**D** 1000 joules
Show your work in the space below:

7. Batteries produce electricity by means of a chemical reaction. Some batteries are disposable. The reactants of a disposable battery are eventually used up. At that point the battery is dead and can no longer be used. Other batteries are rechargeable. A rechargeable battery can be inserted into a device that uses electric current to convert the products of the reaction back to the reactants. As a result, a rechargeable battery can be used over and over again.
What is an advantage of rechargeable batteries over disposable batteries?
**A** Rechargeable batteries have a lower initial purchase price.
**B** Rechargeable batteries produce a stronger electric current.
**C** Rechargeable batteries result in less pollution of the environment.
**D** Rechargeable batteries convert chemical energy directly to electricity.
_____ Explain your answer:

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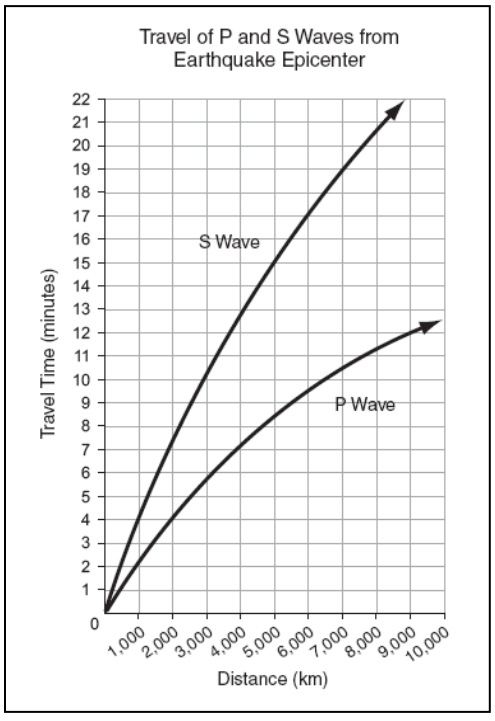
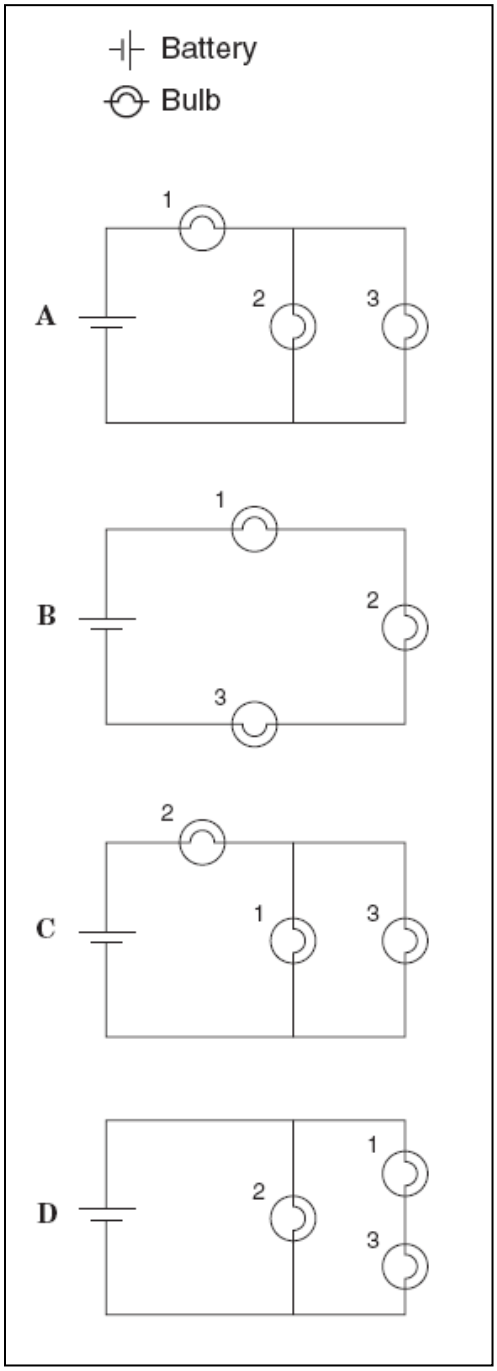



8. During an earthquake, primary (P) waves travel faster than secondary (S) waves. The difference in arrival time between a P wave and an S wave can be used to determine the distance from a seismograph to the epicenter of the earthquake.
A seismograph station records the first P wave of an earthquake at 05:26:00 (hour:minute:second). If the epicenter of the earthquake is 4,000 kilometers from the station, at what time will the station record the first S wave?
**A** 05:20:30
**B** 05:30:00
**C** 05:31:30
**D** 05:38:30

9. It takes a weight lifter 4.0 seconds to lift a barbell 1.5 meters. He exerts a force on the barbell of 1500
newtons. About how much power does the weight lifter use to lift the barbell?
**A** 375 watts
**B** 563 watts
**C** 2250 watts
**D** 9000 watts
Show your work in the space below:




10. In which circuit will Bulb 3 remain lit if Bulb 1 burns out?

_____ Explain your answer:
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11. During a test of vehicle safety standards, four different vehicles were driven at a test wall at 35 km/h. Which vehicle would most likely hit the wall with the greatest force?
**A** A bicycle
**B** A motorcycle
**C** A two-door sports car
**D** A four-door family car
_____ Explain your answer:
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12. A stone is dropped from a bridge and hits the river beneath the bridge 2.30 seconds later. Ignoring the effect of air resistance, what is the stone's approximate velocity when it hits the river?
**A** 0.235 m/s
**B** 4.26 m/s
**C** 12.1 m/s
**D** 22.5 m/s
Show your work in the space below:

13. In which of the following is the greatest amount of work done?
**A** Pushing a crate 9.8 meters with a force of 10 newtons
**B** Pulling a wagon 5.2 meters with a force of 50 newtons
**C** Pulling a sled 2.3 meters with a force of 90 newtons
**D** Pushing with a force of 150 newtons on a car that does not move
Show your work in the space below: