**CDX Distance Learning**

**Exercise #34**

**Planetary Gear Set**

**Student Name:** Click or tap here to enter text.

Click or tap the check box next to the answer choice that best completes the statement or answers the question. Viewing the animation will be required to answer the following questions correctly. Read the question and use the link provided to open the animation. Follow the directions in the questions and select the correct answer.

[**Planetary Gear Set Animation**](http://d2jw81rkebrcvk.cloudfront.net/assetscdx2/202003%20-%20COVID/Assessments/MS/ANIM/AT/AT_SimplePlanetarySet_C1/AT_SimplePlanetarySet_C1.html)

1. Planetary gear sets are used in automatic transmissions to increase the gear ratios available for use in the transmission. Using the animation, what is the output gear ratio when the sun gear is held and the ring gear is the driver?
	1. 1:1 [ ]
	2. 0.71:1 [ ]
	3. 3.52:1 [ ]
	4. 1.39:1 [ ]
2. What is the output gear ratio when the sun gear is the driver and the ring gear is driven?
	1. 1:1 [ ]
	2. 0.28:1 [ ]
	3. 2.52:1 [ ]
	4. 3.52:1 [ ]
3. The use of a planetary gear set allows the transmission to create an overdrive condition, which increases fuel mileage and decreases wear on the vehicle. Using the animation, what is the speed condition when the carrier is the driver and the sun gear is driven?
	1. Reduction [ ]
	2. Increase [ ]
	3. Direct [ ]
	4. Reduction (R) [ ]
4. The planetary gear set allows for more tooth contact for each gear it controls. When the proper combination is selected, the output can help move the vehicle with minimal engine input. Which position should the planetary gear set be put into so that maximum gear reduction can be achieved?
	1. Position 1 [ ]
	2. Position 2 [ ]
	3. Position 5 [ ]
	4. Position 7 [ ]
5. As the vehicle reaches highway speeds, what should the planetary gear be doing when it comes to changing transmission output?
	1. The planetary gear should be moving toward a driven output to increase transmission output. [ ]
	2. The planetary gear should be moving toward a direct drive output to maintain transmission output. [ ]
	3. The planetary gear should be moving toward a reduction output to increase transmission output. [ ]
	4. The planetary gear should be moving toward an overdrive output to increase transmission output. [ ]
6. What gear ratio would be the output of the assembly when holding the carrier and driving the sun gear?
	1. 0.39:1 [ ]
	2. 2.52:1 [ ]
	3. 0.71:1 [ ]
	4. 3.52:1 [ ]
7. To calculate a gear ratio, you must do which of the following?
	1. You take the driven gear teeth number and divide it by the drive gear teeth to determine the gear ratio. [ ]
	2. You take the drive gear teeth number and divide it by the driven gear teeth to determine the gear ratio. [ ]
	3. You take the driven gear teeth number and divide it by the carrier gear to determine the gear ratio. [ ]
	4. You take the ring gear and divide if by the sun gear teeth count to determine gear ratio. [ ]
8. When selecting a gear for the proper application, which of these items should you take into account? Select *all* that apply.
	1. Engine rpm [ ]
	2. Vehicle speed [ ]
	3. Vehicle type [ ]
	4. Transmission type [ ]
9. When the planetary drive is switched into the direct drive mode, what is creating the output of the drive?
	1. The planetary gear set will change the output and will increase upon exiting the gear set. [ ]
	2. The engine rpm output is directly connected throughout the planetary drive. [ ]
	3. The gear reduction output will decrease based on how the planetary sun gear is held stationary . [ ]
	4. The ring gear will make the output of the planetary gear set faster than the input. [ ]
10. Using the animation, mode 6 holds which of the following components?
	1. The ring gear [ ]
	2. The sun gear [ ]
	3. The planet carrier [ ]
	4. The whole planetary is locked together [ ]