ASVAB-SECTION-3$^{Q\&As}$

ASVAB Section Three : Mechanical Comprehension

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QUESTION 1

On a bicycle there are 30 teeth on the gear sprocket connected to the pedals, and 10 teeth on the sprocket connected to the rear wheels.

If you pedal the bike 12 times, how many times will the rear wheel turn?

A. 4 times

B. 12 times

C. 24 times

D. 36 times

Correct Answer: D

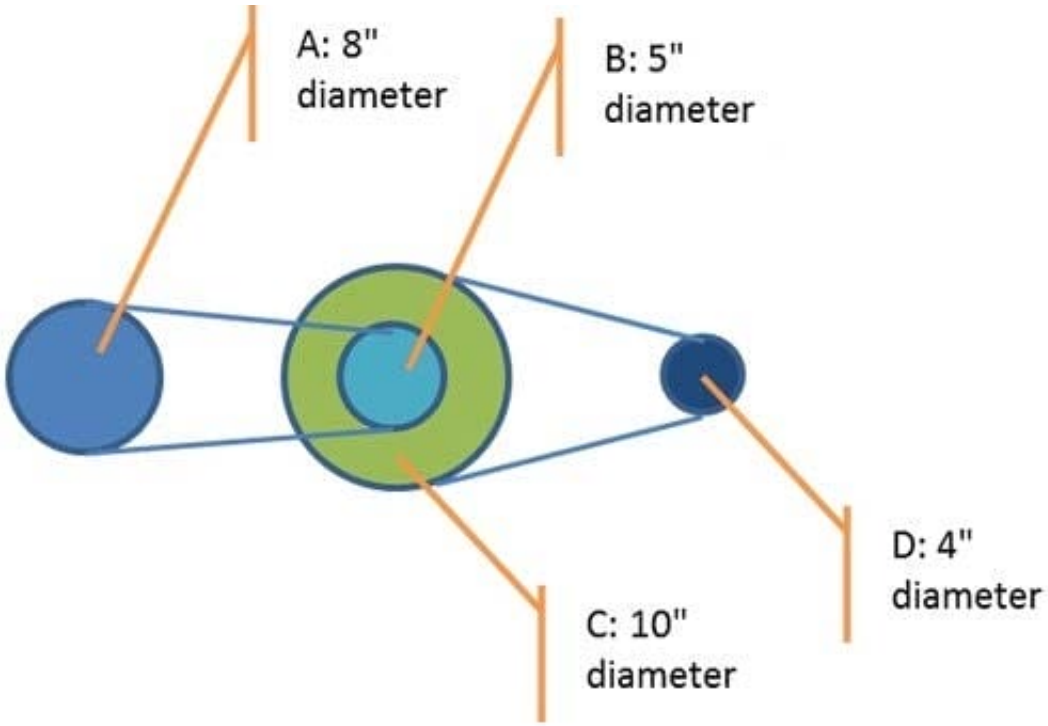
Since there are 30 teeth on the pedal sprocket, but only 10 teeth on the rear wheel, each revolution of the

pedal will turn the rear wheel 3 times.

So 12 revolutions will turn the rear wheel 36 times.

QUESTION 2

In the pulley system below, how fast does pulley D rotate, if pulley A rotates at 50 rpm?



A. 100 rpm

B. 50 rpm

C. 200 rpm

D. 64 rpm

Correct Answer: C

A larger pulley causes a smaller pulley to rotate faster by the ratio of their diameters.

If pulley A rotates at 50 rpm, then pulley B rotates at 50 × 8/5=80 rpm. Since C is directly connected to B it

rotates at the same rate (80 rpm).

Finally, pulley D will rotate at 80 rpm x 10/4 = 200 rpm

QUESTION 3

A gear and pinion have a ratio of 4 to 1.

If the gear makes 200 revolutions per minute, the speed of the pinion is _____.

A. 50 rpm

B. 800 rpm

C. 400 rpm

D. 200 rpm

Correct Answer: B

The pinion turns 4 times as often as the gear: 4 × 200 = 800.

QUESTION 4

If a first class lever with a resistance arm measuring 2 feet and an effort arm measuring 8 feet are being used, what\\'s the mechanical advantage?

A. 2

B. 4

C. 6

D. 1

Correct Answer: B

Mechanical advantage can be calculated as Length of Effort Arm ÷ Length of Resistance Arm. MA = 8 ÷ 2 = 4.

QUESTION 5

When you heat water that is confined in a closed container so that the steam cannot escape, the pressure inside the container _____ and the temperature of the boiling water _____.

A. increases, decreases

B. increases, increases

C. decreases, decreases

D. decreases, increases

Correct Answer: B

Heating an enclosed container of boiling water increases the pressure of the water vapor (steam) inside the container and increases the temperature of the water.