

Pre Calculus Honors 5 3 Part II Cosine and Sine Word Problems

Lesson 233 | Precalculus | Sinusoidal word problems

<https://www.youtube.com/watch?v=L5PGezi4TWI>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

A Ferris wheel has radius 7 m, center 9 m above ground, and period 70 seconds. A rider starts at the lowest point. Write height $h(t)$ and find $h(35)$.

02

A Ferris wheel has radius 12 m, center 20 m above ground, and period 60 seconds. A rider starts at the lowest point. Write height $h(t)$ and find $h(30)$.

03

A Ferris wheel has radius 11 m, center 14 m above ground, and period 50 seconds. A rider starts at the lowest point. Write height $h(t)$ and find $h(25)$.

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04

A Ferris wheel has radius 4 m, center 13 m above ground, and period 40 seconds. A rider starts at the lowest point. Write height $h(t)$ and find $h(20)$.

05

A Ferris wheel has radius 10 m, center 22 m above ground, and period 40 seconds. A rider starts at the lowest point. Write height $h(t)$ and find $h(20)$.

06

A Ferris wheel has radius 5 m, center 12 m above ground, and period 70 seconds. A rider starts at the lowest point. Write height $h(t)$ and find $h(35)$.

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01

A Ferris wheel has radius 7 m, center 9 m above ground, and period 70 seconds. A rider starts at the lowest point. Write height $h(t)$ and find $h(35)$.

$h(t)=9-7\cos(2\pi t/70)$. At half a revolution $t=35$, $\cos\pi=-1$, so $h=16$ m. Minimum is 2 m, maximum 16 m.

02

A Ferris wheel has radius 12 m, center 20 m above ground, and period 60 seconds. A rider starts at the lowest point. Write height $h(t)$ and find $h(30)$.

$h(t)=20-12\cos(2\pi t/60)$. At half a revolution $t=30$, $\cos\pi=-1$, so $h=32$ m. Minimum is 8 m, maximum 32 m.

03

A Ferris wheel has radius 11 m, center 14 m above ground, and period 50 seconds. A rider starts at the lowest point. Write height $h(t)$ and find $h(25)$.

$h(t)=14-11\cos(2\pi t/50)$. At half a revolution $t=25$, $\cos\pi=-1$, so $h=25$ m. Minimum is 3 m, maximum 25 m.

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04

A Ferris wheel has radius 4 m, center 13 m above ground, and period 40 seconds. A rider starts at the lowest point. Write height $h(t)$ and find $h(20)$.

$h(t)=13-4\cos(2\pi t/40)$. At half a revolution $t=20$, $\cos\pi=-1$, so $h=17$ m. Minimum is 9 m, maximum 17 m.

05

A Ferris wheel has radius 10 m, center 22 m above ground, and period 40 seconds. A rider starts at the lowest point. Write height $h(t)$ and find $h(20)$.

$h(t)=22-10\cos(2\pi t/40)$. At half a revolution $t=20$, $\cos\pi=-1$, so $h=32$ m. Minimum is 12 m, maximum 32 m.

06

A Ferris wheel has radius 5 m, center 12 m above ground, and period 70 seconds. A rider starts at the lowest point. Write height $h(t)$ and find $h(35)$.

$h(t)=12-5\cos(2\pi t/70)$. At half a revolution $t=35$, $\cos\pi=-1$, so $h=17$ m. Minimum is 7 m, maximum 17 m.