

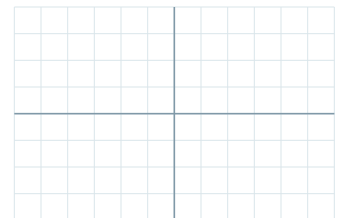
Review for Pre Calculus Final in Less Than 40 Minutes(Are you Kidding Me?)

Lesson 198 | Precalculus | Functions, composition and piecewise rules • Trigonometric equations • Conic sections

<https://www.youtube.com/watch?v=-j-xztANAOY>

Related review: exact coverage needs teacher confirmation.

Name: _____ Date: _____ Show your reasoning.

01Let $f(x) = 6x + 10$ for $x < -3$, and $f(x) = x^2 + 8$ for $x \geq -3$. Find $f(-4)$, $f(-3)$, and $f(-2)$.**02**Solve $3\sin(5x) - \frac{3}{2} = 0$ for $0 \leq x < 2\pi$. Give an exact formula listing all roots.**03**For $(x-4)^2/144 + (y-7)^2/100 = 1$, find the center, vertices, co-vertices, and foci; sketch.

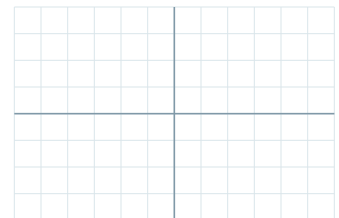
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04Let $f(x) = 12x + 2$ for $x < 5$, and $f(x) = x^2 + 6$ for $x \geq 5$. Find $f(4)$, $f(5)$, and $f(6)$.**05**Solve $11\sin(5x) - 11/2 = 0$ for $0 \leq x < 2\pi$. Give an exact formula listing all roots.**06**For $(x - (-1))^2/144 + (y - 10)^2/36 = 1$, find the center, vertices, co-vertices, and foci; sketch.

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01

Let $f(x) = 6x + 10$ for $x < -3$, and $f(x) = x^2 + 8$ for $x \geq -3$. Find $f(-4)$, $f(-3)$, and $f(-2)$.

Choose the rule from the input interval: $f(-4) = -14$; $f(-3) = 17$; $f(-2) = 12$. Equality uses the second rule.

02

Solve $3\sin(5x) - 3/2 = 0$ for $0 \leq x < 2\pi$. Give an exact formula listing all roots.

$\sin(5x) = 1/2$. Thus $x = (\pi/6 + 2k\pi)/5$ or $x = (5\pi/6 + 2k\pi)/5$, $k=0,1,\dots,4$. There are 10 roots in the interval.

03

For $(x-4)^2/144 + (y-7)^2/100 = 1$, find the center, vertices, co-vertices, and foci; sketch.

Center $(4,7)$; horizontal semimajor axis 12, semiminor axis 10. Vertices $(-8,7), (16,7)$; co-vertices $(4,-3), (4,17)$; foci $(4 \pm \sqrt{44}, 7)$.

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04

Let $f(x) = 12x + 2$ for $x < 5$, and $f(x) = x^2 + 6$ for $x \geq 5$. Find $f(4)$, $f(5)$, and $f(6)$.

Choose the rule from the input interval: $f(4) = 50$; $f(5) = 31$; $f(6) = 42$. Equality uses the second rule.

05

Solve $11\sin(5x) - 11/2 = 0$ for $0 \leq x < 2\pi$. Give an exact formula listing all roots.

$\sin(5x) = 1/2$. Thus $x = (\pi/6 + 2k\pi)/5$ or $x = (5\pi/6 + 2k\pi)/5$, $k=0,1,\dots,4$. There are 10 roots in the interval.

06

For $(x-(-1))^2/144 + (y-10)^2/36 = 1$, find the center, vertices, co-vertices, and foci; sketch.

Center $(-1,10)$; horizontal semimajor axis 12, semiminor axis 6. Vertices $(-13,10), (11,10)$; co-vertices $(-1,4), (-1,16)$; foci $(-1 \pm \sqrt{108}, 10)$.