Test 1: Functions

Avg: 78%

$f(x) = x^2 - 2$

$f(2) = (2)^2 - 2 = 2$

Open Response:

* 2. (c) $f[w(3y^2)] - 2g(y^2-1) + f(3y-5)$

$w(3y^2) = \sqrt{7-3y^2}$

$f(\sqrt{7-3y^2}) = (\sqrt{7-3y^2})^2 - 2$

$= 7 - 3y^2 - 2$

$= 5 - 3y^2$

$g(y^2-1) = -2(y^2-1) + 1$

$= -2y^2 + 3$

$f(3y-5)$

$= (3y-5)^2 - 2$

$= 9y^2 - 30y + 23$

$= (5-3y^2) - 2(-2y^2+3) + (9y^2-30y+23)$

$= 5 - 3y^2 + 4y^2 - 6 + 9y^2 - 30y + 23$

$= 10y^2 - 30y + 22$

3.(iii) $(x,y) \to \left(\frac{-1}{3}x+4,\ 7y-5\right)$

$(-9,3) \to \left(\frac{-1}{3}(-9)+4,\ 7(3)-5\right)$

$g(x) \to (7,16)$

$g^{-1}(x) \to (16,7)$

4. $g(x)=x^3$

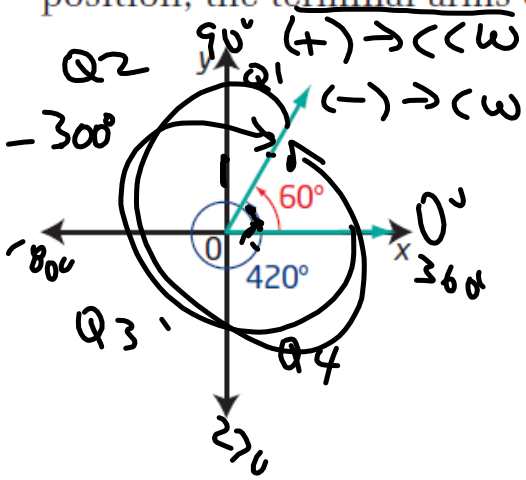
$F(x) = 3\left(-\frac{7}{2}(x+2)\right)^3 - 6$

or

$F(x) = 3g\left(-\frac{7}{2}(x+2)\right) - 6$

Coterminal Angles

When you sketch an angle of 60° and an angle of 420° in standard position, the terminal arms coincide. These are **coterminal angles**.



coterminal angles

- angles in standard position with the same terminal arms
- may be measured in degrees or radians
- $\frac{\pi}{4}$ and $\frac{9\pi}{4}$ are coterminal angles, as are 40° and −320°

Strategy for finding coterminal angles in either radians or degrees?

$$70^\circ \Rightarrow \pm 360^\circ K,\ K \in N$$

$$\frac{\pi}{6} \Rightarrow \pm 2\pi K,\ K \in N$$

For each angle in standard position, determine one positive and one negative angle measure that is coterminal with it.

a) $270°$ **b)** $-\frac{5\pi}{4}$ **c)** $740°$

$270° + 360° = 630°$

$270° - 360° = -90°$

$= -\frac{5\pi}{4} + \frac{2\pi}{1}$

$= \frac{3\pi}{4}$

$= -\frac{5\pi}{4} - \frac{2\pi}{1}$

$= \frac{-13\pi}{4}$

$= 740° + 360°$

$= 1100°$

$= 740° - 1080°$

$= -340°$

$173\ 587° \div 360° = 482.1861\ldots$

-482

0.1861111

$\times 360°$

Principal Angle $\Rightarrow 67°$

$-360°$

$-293°$

$38\ 497° =$

$\div 360$

$\times 360$

$-360°$

$= -23°$

$-483\,139^\circ \div 360^\circ =$

$-1342.052\ldots$

$+\ 1342$

$-0.052\ldots$

$\times 360^\circ$

-19°

$+360^\circ$

341°

ex: $\frac{37\pi}{5} \div 2\pi$

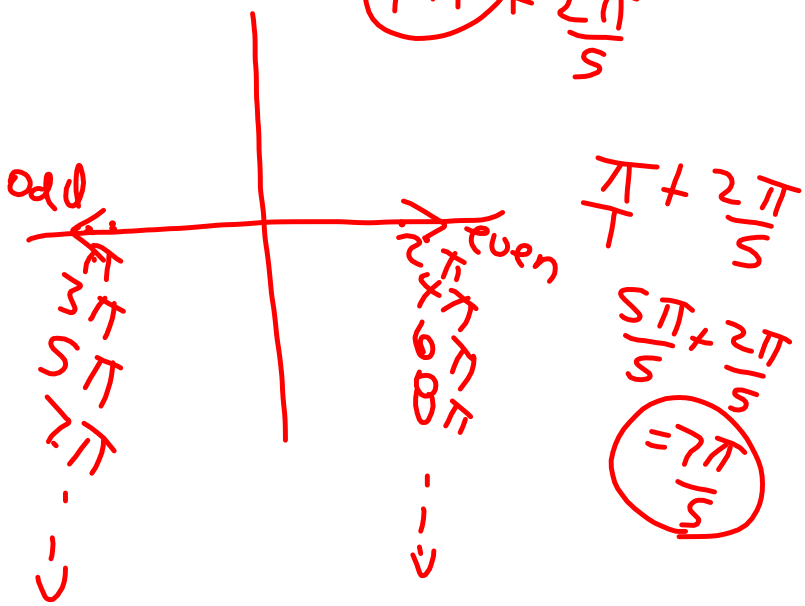
$\frac{37\pi}{5} \times \frac{1}{2\pi} = \frac{37}{10}$ Rotations

~~3 full~~ and $\frac{7}{10}$ of another

$\frac{7(2\pi)}{10} = \frac{7\pi}{5}$

$\frac{37\pi}{5} = \frac{35\pi}{5} + \frac{2\pi}{5}$

$= 7\pi + \frac{2\pi}{5}$



Determine a negative angle co-terminal with each of the following angles:

1) $476895°$

2) $\frac{35784\pi}{5}$ $\times \frac{1}{2\pi}$

$\frac{35784}{10}$

3578.4

$\frac{4}{10}$ of a Rev.

$\frac{2}{5}(2\pi) = \frac{4\pi}{5}$

$\frac{4\pi}{5} - \frac{10\pi}{5}$

$= \frac{4\pi}{5} - \frac{2\pi}{1}$

$= -\frac{6\pi}{5}$

Practice Problems...

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