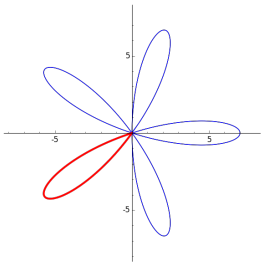
PreCalc Quiz 12 version 1

name:

1. (0.31415926535897937, 0.94247779607693816)
$18.00^o \leq \theta \leq 54.00^o$



A find an approximate range corresponding to the highlighted portion of the graph.

B $54.00^o \leq \theta \leq 90.00^o$

2. Convert the cartesian coordinates, (5, -5) , to Polar Coordinates

A $r = \sqrt{5^2 + -5^2}\,,\ \theta = \arctan\left(\frac{-5}{5}\right)$

B $r = -5\sqrt{2}\,,\ \theta = -45.00^o$

C none of these

3. Consider the following trigonometric equation

$$\frac{2\sin(x)}{2\cos(x)+1} = \frac{\sqrt{3}}{2}$$

In this equation assume x lies between 0 and 90 degrees. oh and a hint: maybe leave this one for last

A $x = 60^o$ is the only solution in the 0 < x < 90 deg range

B the equation has no real solutions

C the substitution

$$t = \tan\left(\frac{x}{2}\right)$$

is helpful in solving this equation

D the identity

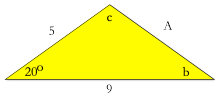
$$\cos^2(x) = 1 - \sin^2(x)$$

is helpful in solving this equation

E none of these

4. applying the Law of Sines would yield

$$\frac{\sin(b)}{9} = \frac{\sin(20^o)}{A}$$



This would be....

A legal B helpful C incorrect

5. Practice Work on each side: Determine if the following is an identity, prove your answer: $\frac{1}{1-2\sin^2 x} = \frac{1}{2\cos^2 x - 1}$

A true B false

6. Convert the cartesian coordinates, (4, -5) , to Polar Coordinates

A $r = \sqrt{4^2 + -5^2}\,,\ \theta = \arctan\left(\frac{-5}{4}\right)$

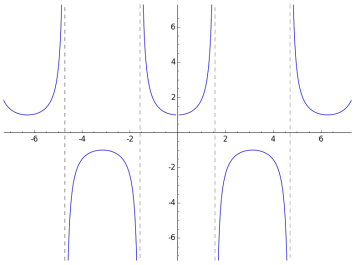
B $r = -\sqrt{41}\,,\ \theta = -51.34^o$

C $r = \sqrt{41}\,,\ \theta = -51.34^o$

D $r = -\sqrt{41}\,,\ \theta = 128.7^o$

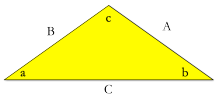
E $r = \sqrt{41}\,,\ \theta = 128.7^o$

7. Match the graph with the equation



A $y = \csc(x)$ B $y = |x|$ C $y = \sec(x)$
D $y = x^3$ E $y = x^2$ F $y = e^x$

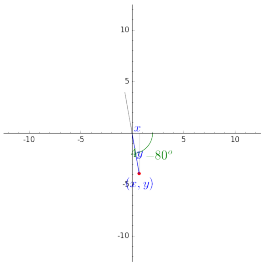
8. The Law of Cosines from angle a says...



A
$$A^2 = B^2 + C^2 - 2BC\cos(a)$$

B
$$A^2 = B^2 + C^2 + 2BC\cos(a)$$

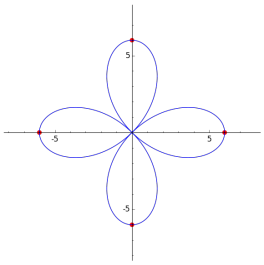
9. Convert From Polar to cartesian
note $r = 4$ and $\theta = -80$



A $x = 4\sin(-80^o)$, $y = 4\cos(-80^o)$
B $x = 4\cos(-80^o)$, $y = 4\sin(-80^o)$
C $x = r\cos(\theta)$, $y = r\sin(\theta)$

10. find the highlighted points over the 0 to 360^o range

$$r = 3\cos(2\theta)$$



A ['75.00', '165.0', '160.0', '260.0', '380.0', '385.0']
B ['100.0', '195.0', '195.0', '280.0', '370.0', '365.0']
C ['180.0', '270.0', '360.0', '90.00']
D ['105.0', '175.0', '200.0', '255.0', '345.0', '340.0']

11.

$$-2\sin\left(\frac{\alpha+\square}{2}\right)\sin\left(\frac{\alpha-\square}{2}\right)$$

is interchangeable with

A $\sin(\alpha)\sin(\square)$

B $\cos(\alpha)-\cos(\square)$

C $\cos(\alpha)+\cos(\square)$

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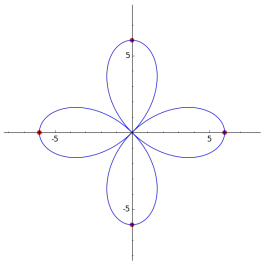
12. One way to generally find ALL tips of the pedals [such as ALL the highlighted points below] is to find would be

$$r = 7\cos(2\theta)$$



A find angles where $r = 7$ its maximum values

B find all solutions to the equations $7 = 7\cos(2x)$ and $-7 = 7\cos(2x)$

C find angles where $r = 0$

D none of these

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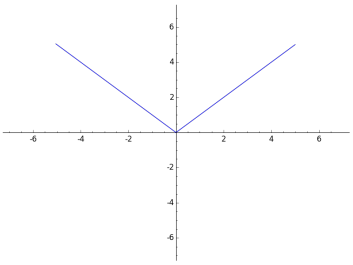
13. Match the graph with the equation



A $y = \sec(x)$

B $y = |x|$

C $r = \sin(\theta) + 3$

D $r = 3\sin(-\theta)$

E $r = \cos(\theta) + 3$

F none of these

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14. Find the Cartesian coordinates of the given polar coordinates. $(-3, 0)$

A $(-3, 0)$ B $(3, 0)$ C $(0, 3)$ D $(0, -3)$

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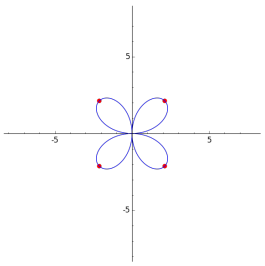
15. find the highlighted points over the 0 to 360^o range



$$r = 3\sin(2\theta)$$

A ['35.00', '145.0', '215.0', '320.0']

B ['135.0', '225.0', '315.0', '45.00']

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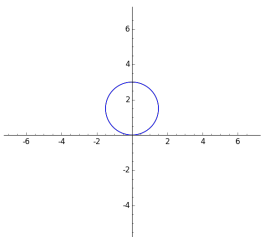
16. Match the graph with the equation



A $r = 3\sin(\theta)$

B $r = 2\cos(\theta) + 3$

C $r = 3\cos(\theta)$

D $r = 2\sin(\theta) + 3$

E none of these

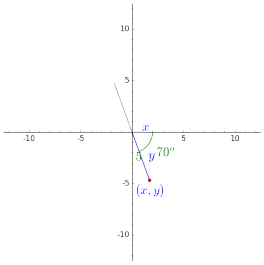
17. Determine if the given polar coordinates represent the same point.

$(8, \pi/6), (-8, 7\pi/6)$

A No B Yes

18. Convert From Polar to cartesian

note $r = 5$ and $\theta = -70$



A $x = r\cos(\theta)\ ,\ y = r\sin(\theta)$

B $x = 5\cos(-70^o)\ ,\ y = 5\sin(-70^o)$

C $x = r\sin(\theta)\ ,\ y = r\sin(\theta)$

19. Find the polar coordinates, $0 \le \theta < 2\pi$ and $r \ge 0$, of the point given in Cartesian coordinates.

$(\sqrt{2}, -\sqrt{2})$

A $\left(2, \frac{5\pi}{4}\right)$

B $\left(2, \frac{7\pi}{4}\right)$

C $\left(\sqrt{2}, \frac{7\pi}{4}\right)$

D $\left(4, \frac{5\pi}{4}\right)$

20. Find the polar coordinates, $0 \le \theta < 2\pi$ and $r \ge 0$, of the point given in Cartesian coordinates. $(4, -4)$

A $\left(4\sqrt{2}, \frac{3\pi}{4}\right)$

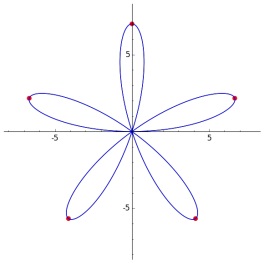
B $\left(4\sqrt{2}, \frac{7\pi}{4}\right)$

C $\left(4\sqrt{2}, \frac{\pi}{4}\right)$

D $\left(4\sqrt{2}, \frac{5\pi}{4}\right)$

21. find the highlighted points over the 0 to 360^o range

$r = 7\sin(5\,\theta)$



A ['8.000', '64.00', '80.00', '131.0', '147.0', '183.0', '219.0', '280.0', '301.0', '357.0']

B ['28.00', '39.00', '65.00', '106.0', '182.0', '213.0', '244.0', '280.0', '316.0', '317.0']

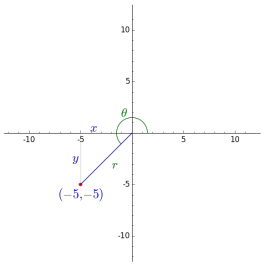
C ['28.00', '59.00', '70.00', '151.0', '147.0', '188.0', '244.0', '290.0', '291.0', '357.0']

D ['126.0', '162.0', '18.00', '198.0', '234.0', '270.0', '306.0', '342.0', '54.00', '90.00']

E none of these

22.

Convert to Polar



A $r = -5\sqrt{2}\,,\ \theta = 225.0^o$

B $r = -5\sqrt{2}\,,\ \theta = 405.0^o$

C $r = 5\sqrt{2}\,,\ \theta = 405.0^o$

D $r = 5\sqrt{2}\,,\ \theta = 225.0^o$

E none of these

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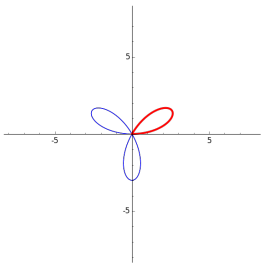
23. (3.14162648068812, 4.188786852511388)

$180.0^o \leq \theta \leq 240.0^o$



A $r = 6\,\sin(3\,\theta)$

B $240.0^o \leq \theta \leq 300.0^o$

C none of these

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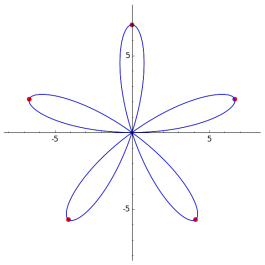
24. One way to generally find ALL tips of the pedals [such as ALL the highlighted points below] is to find would be

$r = 3\,\sin(5\,\theta)$



A find angles where $r = 3$ or $r = -3$, its maximum/minimum values

B find angles where $r = 3$ its maximum values

C find angles where $r = 0$

D none of these

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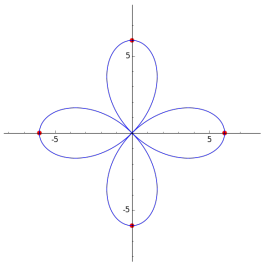
25. find the highlighted points over the 0 to 360^o range

$r = 4\,\cos(2\,\theta)$



A ['115.0', '170.0', '190.0', '250.0', '340.0', '340.0']

B ['95.00', '165.0', '170.0', '280.0', '370.0', '370.0']

C ['180.0', '270.0', '360.0', '90.00']
