

15. -/1 points

LarTrig8 4.4.014.

Use DeMoivre's Theorem to find the indicated power of the complex number. Write the result in standard form.

$$\left[3 \left(\cos \left(\frac{\pi}{2} \right) + i \sin \left(\frac{\pi}{2} \right) \right) \right]^8$$

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16. -/1 points

LarTrig8 4.4.018.

Use DeMoivre's Theorem to find the indicated power of the complex number. Write the result in standard form. (Round your terms to the nearest whole number.)

$$(2 + 5i)^6$$

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17. -/1 points

LarTrig8 4.4.020.

DeMoivre's theorem to find the indicated power of the complex number. Write the result in standard form.

$$(\sqrt{3} + 3i)^4$$

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18. -/1 points

LarTrig8 4.4.022.

Use DeMoivre's Theorem to find the indicated power of the complex number. Write the result in standard form. (Round terms to four decimal places.)

$$[2(\cos 9^\circ + i \sin 9^\circ)]^5$$

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19. -/1 points

LarTrig8 4.4.028.

Use DeMoivre's Theorem to find the indicated power of the complex number. Write the result in standard form. (Round terms to four decimal places.)

$$\left[3 \left(\cos \frac{\pi}{13} + i \sin \frac{\pi}{13} \right) \right]^5$$

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20. -/1 points

LarTrig8 4.4.036.

Find the square roots of the complex number. (Enter your answers as a comma-separated list.)

$$5 - \sqrt{11}i$$

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21. -/5 points

LarTrig8 4.4.038.

For a positive integer n , the complex number $z = r(\cos \theta + i \sin \theta)$ has exactly n distinct n th roots given by

$$\sqrt[n]{r} \left(\cos \frac{\theta + 2\pi k}{n} + i \sin \frac{\theta + 2\pi k}{n} \right)$$

where $k = 0, 1, 2, \dots, n - 1$.

Consider the following.

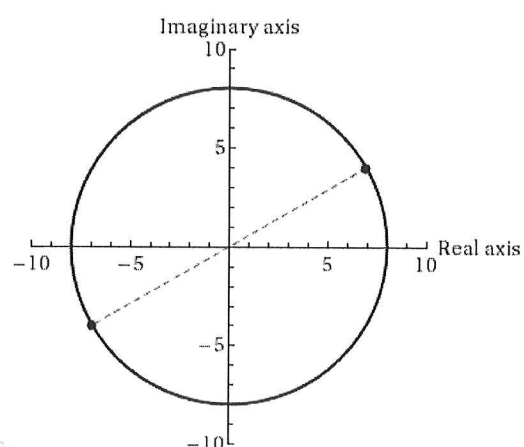
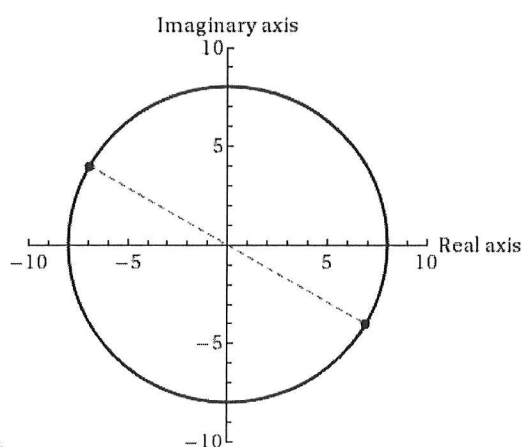
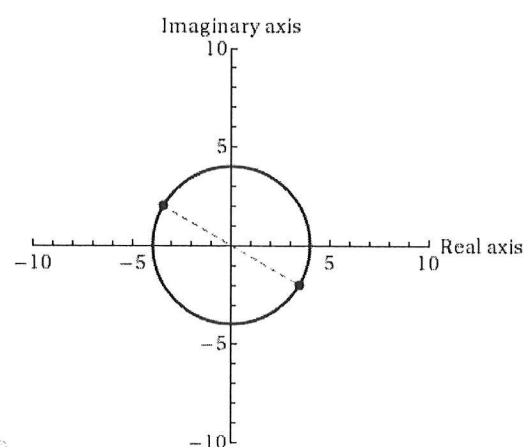
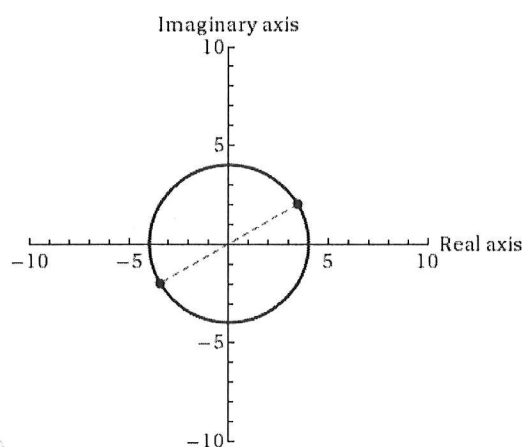
Square roots of $64(\cos 60^\circ + i \sin 60^\circ)$

(a) Use the formula to find the indicated roots of the complex number. (Enter your answers in trigonometric form.)

$k = 0$:

$k = 1$:

(b) Represent each of the roots graphically.



(c) Write each of the roots in standard form.

$k = 0$:

$k = 1$:

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22. -/3 points

LarTrig8 6.7.066.MI.SA.

This question has several parts that must be completed sequentially. If you skip a part of the question, you will not receive any points for the skipped part, and you will not be able to come back to the skipped part.

Tutorial Exercise

Convert the rectangular equation to polar form. Assume $r > 0$.

$$x^2 + y^2 = 81$$

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23. -/1 points

LarTrig8 6.7.068.MI.

Convert the rectangular equation to polar form.

$$y = x$$

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24. -/4 points

LarTrig8 6.7.068.MI.SA.

This question has several parts that must be completed sequentially. If you skip a part of the question, you will not receive any points for the skipped part, and you will not be able to come back to the skipped part.

Tutorial Exercise

Convert the rectangular equation to polar form.

$$y = \frac{1}{\sqrt{3}}x$$

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25. -/1 points

LarTrig8 6.7.074.

Convert the rectangular equation to polar form. (Use r and use theta for θ as necessary.)

$$5x + 9y - 3 = 0$$

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26. -/1 points

LarTrig8 6.7.076.

Convert the rectangular equation to polar form. Assume $a > 0$.

$$2xy = 1$$

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27. -/1 points

LarTrig8 6.7.080.MI.

Convert the rectangular equation to polar form. Assume $c > 0$.

$$x^2 + y^2 = 16c^2$$

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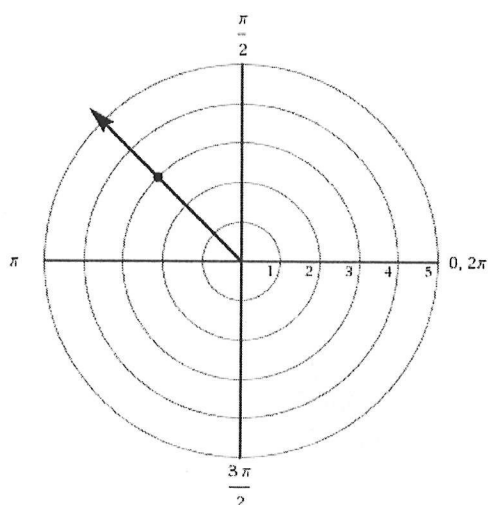
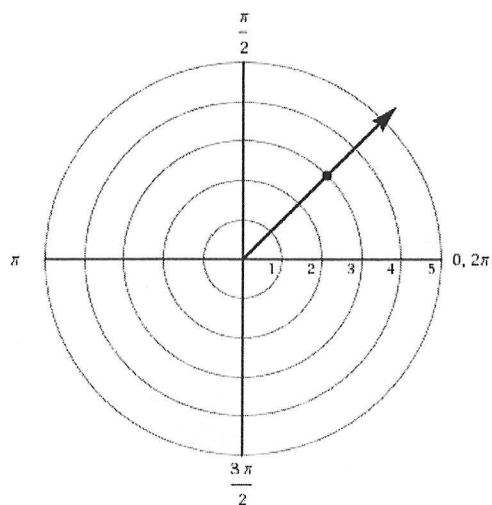
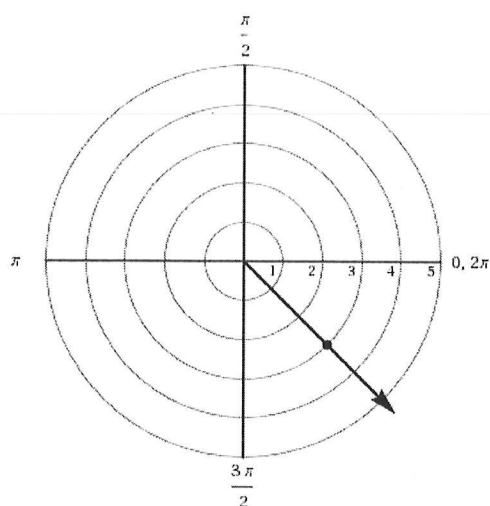
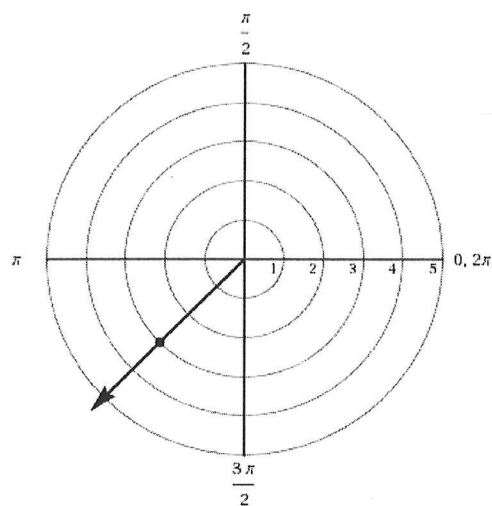
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28. -/7 points

LarTrig8 6.7.006.

Plot the point given in polar coordinates.

$$\left(3, \frac{5\pi}{4}\right)$$



Find three additional polar representations of the point, using $-2\pi < \theta < 2\pi$. (Enter your answers in order from smallest to largest first by r -value, then by θ -value.)

$$(r, \theta) = (\quad , \quad)$$

$$(r, \theta) = (\quad , \quad)$$

$$(r, \theta) = (\quad , \quad)$$

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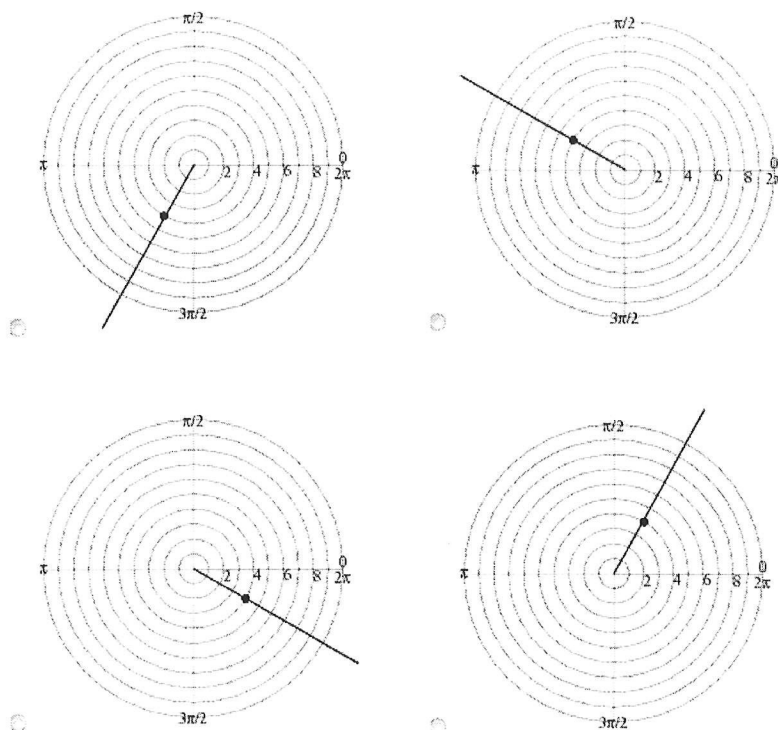
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29. -/7 points

LarTrig8 6.7.008.

Plot the point given in polar coordinates.

$$\left(-4, -\frac{7\pi}{6}\right)$$



Find three additional polar representations of the point, using $-2\pi < \theta < 2\pi$. (Enter your answers in order from smallest to largest first by r -value, then by θ -value.)

$$(r, \theta) = (\quad , \quad)$$

$$(r, \theta) = (\quad , \quad)$$

$$(r, \theta) = (\quad , \quad)$$

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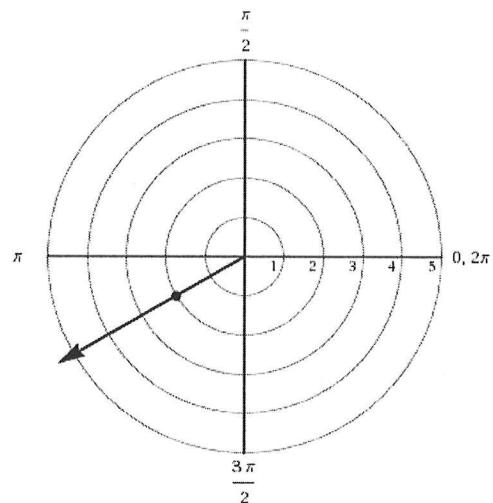
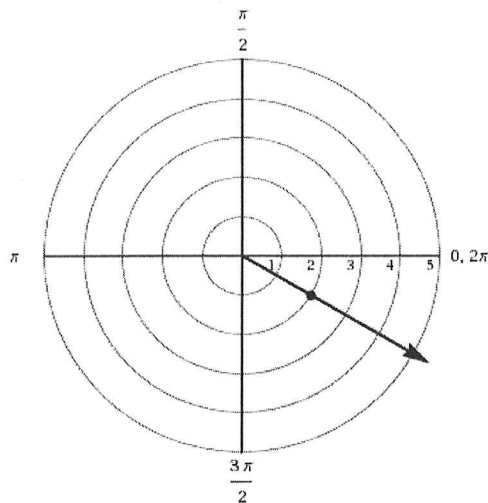
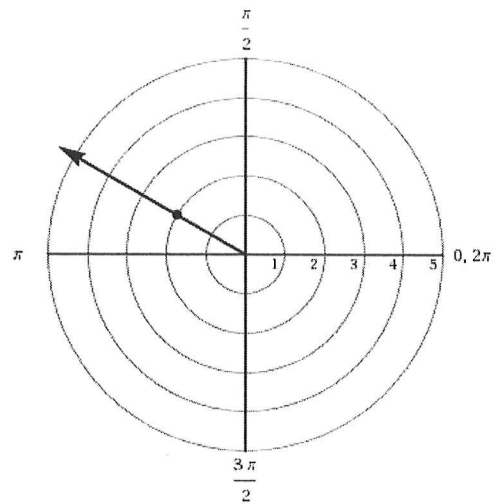
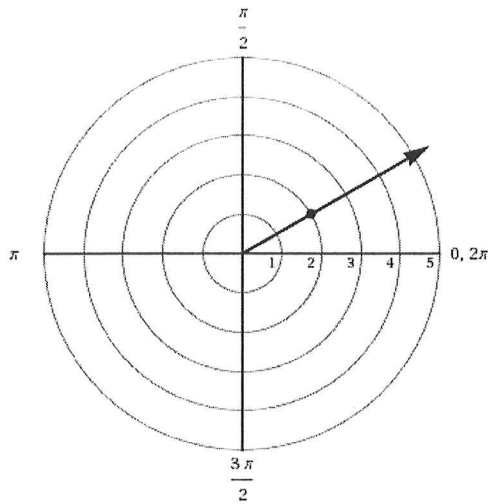
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30. -/7 points

LarTrig8 6.7.012.

Plot the point given in polar coordinates.

$$\left(-2, \frac{11\pi}{6}\right)$$



Find three additional polar representations of the point, using $-2\pi < \theta < 2\pi$. (Enter your answers in order from smallest to largest first by r -value, then by θ -value.)

$$(r, \theta) = (\quad , \quad)$$

$$(r, \theta) = (\quad , \quad)$$

$$(r, \theta) = (\quad , \quad)$$

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31. -/2 points

LarTrig8 6.7.026.MI.

A point in polar coordinates is given. Convert the point to rectangular coordinates.

$$\left(-3, \frac{5\pi}{6}\right)$$

$$(x, y) = \left(\quad, \quad \right)$$

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32. -/2 points

LarTrig8 6.7.030.

Use a graphing utility to find the rectangular coordinates of the point given in polar coordinates. Round your results to two decimal places.

$$(3, 10\pi/9)$$

$$(x, y) = \left(\text{ } , \text{ } \right)$$

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33. -/9 points

LarTrig8 6.7.040.MI.SA.

This question has several parts that must be completed sequentially. If you skip a part of the question, you will not receive any points for the skipped part, and you will not be able to come back to the skipped part.

Tutorial Exercise

A point in rectangular coordinates is given. Convert the point to polar coordinates ($r > 0$, $0 \leq \theta < 2\pi$).

$$(-4, -4)$$

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34. -/2 points

LarTrig8 6.7.046.

A point in rectangular coordinates is given. Convert the point to polar coordinates ($r > 0$, $0 \leq \theta < 2\pi$). (Round your answers to two decimal places.)

$$(-12, -5)$$

$$(r, \theta) = \left(\text{ } , \text{ } \right)$$

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35. -/2 points

LarTrig8 6.7.048.

A point in rectangular coordinates is given. Convert the point to polar coordinates ($r > 0$, $0 \leq \theta < 2\pi$).

$$(-\sqrt{3}, \sqrt{3})$$

$$(r, \theta) = \left(\quad, \quad \right)$$

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36. -/2 points

LarTrig8 6.7.052.

A point in rectangular coordinates is given. Convert the point to polar coordinates ($r > 0$, $0 \leq \theta < 2\pi$). (Round your answers to two decimal places.)

 $(9, 6)$ $(r, \theta) = (\quad , \quad)$

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37. -/2 points

LarTrig8 6.7.059.

Use a graphing utility to find one set of polar coordinates ($r > 0$, $0 \leq \theta < 2\pi$) for the point given in rectangular coordinates. (Round your answer to three decimal places.)

 $(6\sqrt{3}, 5)$ $(r, \theta) = (\quad , \quad)$

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38. -/1 points

LarTrig8 6.7.066.MI.

Convert the rectangular equation to polar form. Assume $r > 0$. (Use r and use theta for θ as necessary.)

$$x^2 + y^2 = 36$$

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39. -/1 points

LarTrig8 6.7.082.

Convert the rectangular equation to polar form. Assume $a > 0$.

$$x^2 + y^2 - 5ay = 0$$

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40. -/1 points

LarTrig8 6.7.086.MI.

Convert the polar equation to rectangular form.

$$r = 7 \cos \theta$$

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41.~/5 points

LarTrig8 6.7.086.MI.SA.

This question has several parts that must be completed sequentially. If you skip a part of the question, you will not receive any points for the skipped part, and you will not be able to come back to the skipped part.

Tutorial Exercise

Convert the polar equation to rectangular form.

$$r = 6 \cos \theta$$

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42.~/1 points

LarTrig8 6.7.088.

Convert the polar equation to rectangular form.

$$r = -3 \sin \theta$$

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43.~/1 points

LarTrig8 6.7.100.

Convert the polar equation to rectangular form.

$$r^2 = 3 \sin \theta$$

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44.~/1 points

LarTrig8 6.7.105.MI.

Convert the polar equation to rectangular form.

$$r = \frac{2}{1 + \sin \theta}$$

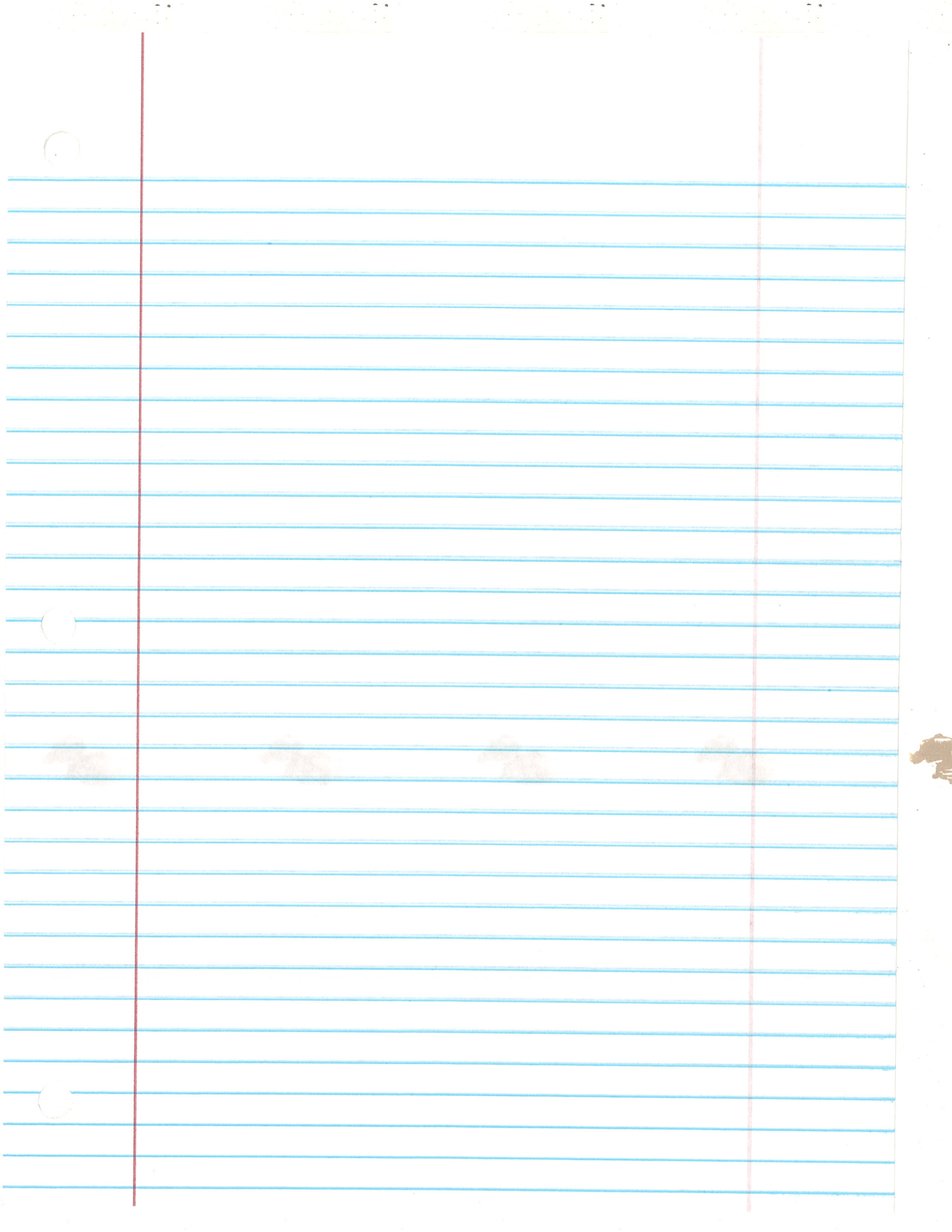
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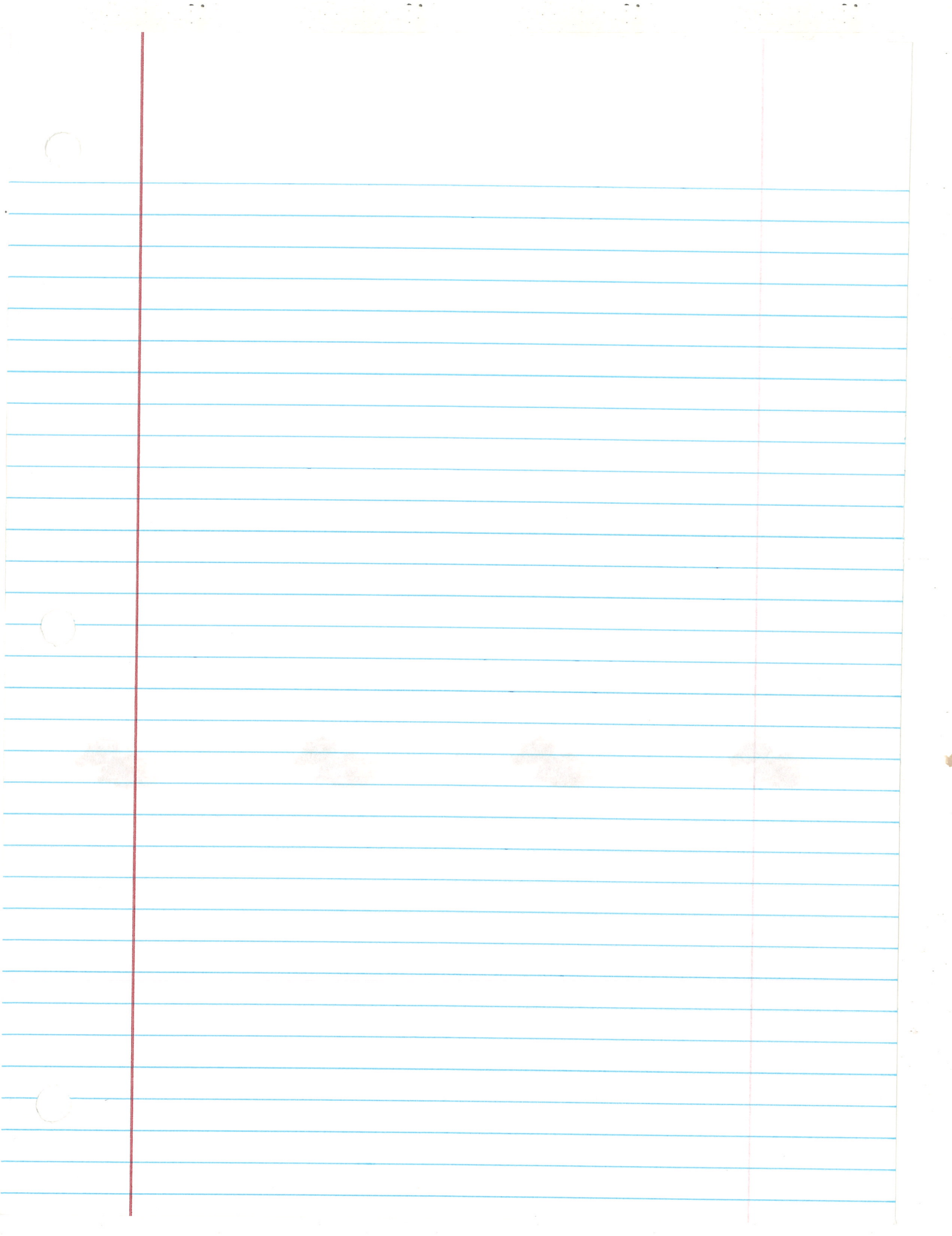
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Give the complement and supplement

$$1. 10^\circ = \frac{\text{comp}}{80^\circ} \quad \underline{\text{sup}}$$

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HW#3 For Test Three (HW1)

Jai Pradia
Math 1316 DE Fall 2013, Fall 2013
Instructor: Togba C. Sapolucia

Current Score :- / 121 Due : Sunday, December 8 2013 11:00 PM CST

1. -/3 points

LarTrig8 4.3.003.

Fill in the blanks.

The of a complex number $z = a + bi$ is given by $z = r(\cos(\theta) + i \sin(\theta))$, where r is the of z and θ is the of z .

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2. -/2 points

LarTrig8 4.3.004.

Fill in the blanks.

Let $z_1 = r_1(\cos \theta_1 + i \sin \theta_1)$ and $z_2 = r_2(\cos \theta_2 + i \sin \theta_2)$ be complex numbers, then the product $z_1 z_2 =$

- ☐ $r_1 r_2 [\cos(\theta_1 + \theta_2) - i \sin(\theta_1 + \theta_2)].$
- ☐ $r_1 r_2 [\cos(\theta_1 + \theta_2) + i \sin(\theta_1 + \theta_2)].$
- ☐ $r_1 r_2 [\sin(\theta_1 + \theta_2) - i \cos(\theta_1 + \theta_2)].$
- ☐ $r_1 r_2 [\cos(\theta_1 - \theta_2) + i \sin(\theta_1 - \theta_2)].$
- ☐ $r_1 r_2 [\cos(\theta_1 - \theta_2) - i \sin(\theta_1 - \theta_2)].$

The quotient $z_1/z_2 =$ _____, ($z_2 \neq 0$).

- ☐ $\frac{r_1}{r_2} [\cos(\theta_1 + \theta_2) - i \sin(\theta_1 + \theta_2)]$
- ☐ $\frac{r_1}{r_2} [\cos(\theta_1 - \theta_2) - i \sin(\theta_1 - \theta_2)]$
- ☐ $\frac{r_1}{r_2} [\cos(\theta_1 + \theta_2) + i \sin(\theta_1 + \theta_2)]$
- ☐ $\frac{r_2}{r_1} [\cos(\theta_1 - \theta_2) + i \sin(\theta_1 - \theta_2)]$
- ☐ $\frac{r_1}{r_2} [\cos(\theta_1 - \theta_2) + i \sin(\theta_1 - \theta_2)]$

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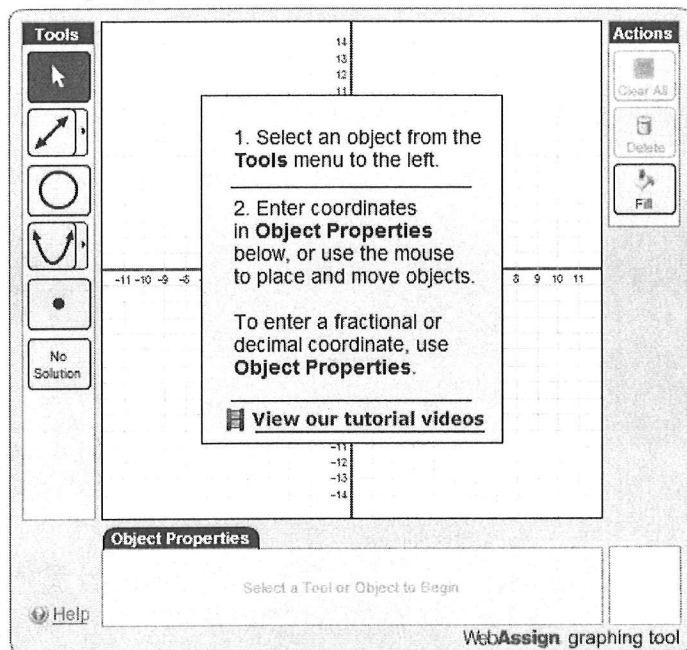
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3. -/2 points

LarTrig8 4.3.006.

Plot the complex number and find its absolute value.

$$9 - 12i$$



$$|9 - 12i| = \boxed{}$$

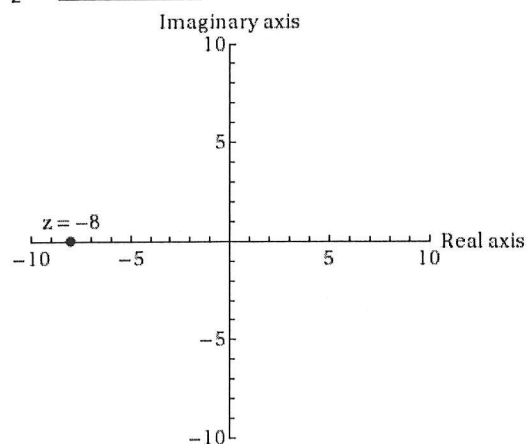
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4. -/1 points

LarTrig8 4.3.012.

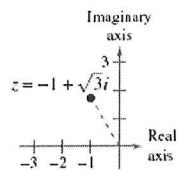
Write the complex number in trigonometric form. (Let $0 \leq \theta < 2\pi$.)

$$z = \boxed{}$$

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5. -/1 points

LarTrig8 4.3.014.

Write the complex number in trigonometric form. (Let $0 \leq \theta < 2\pi$.) $z =$ 

Need Help?

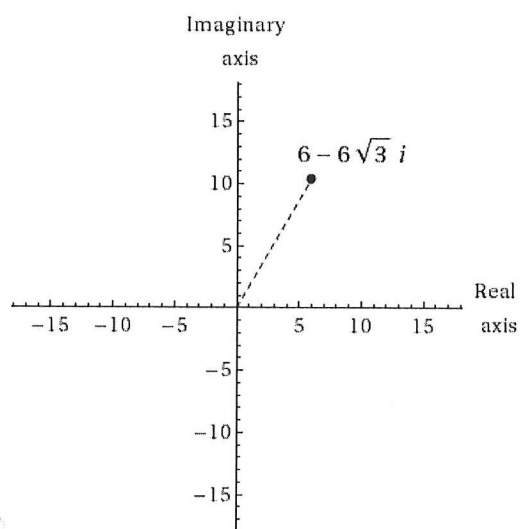
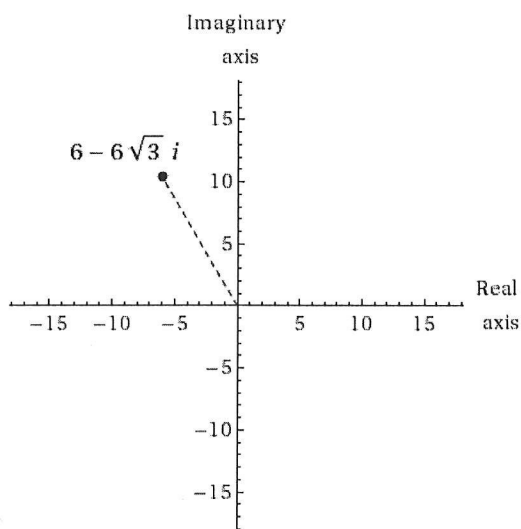
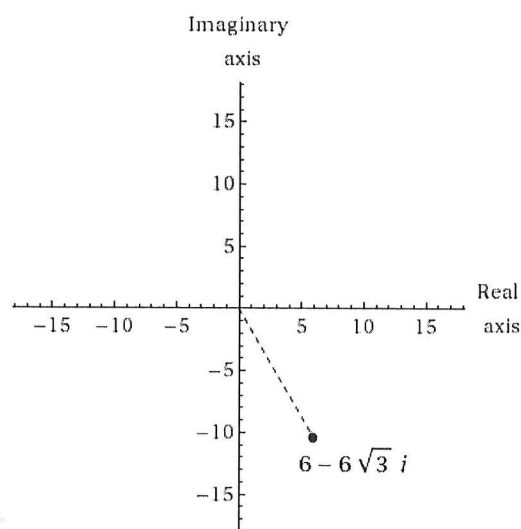
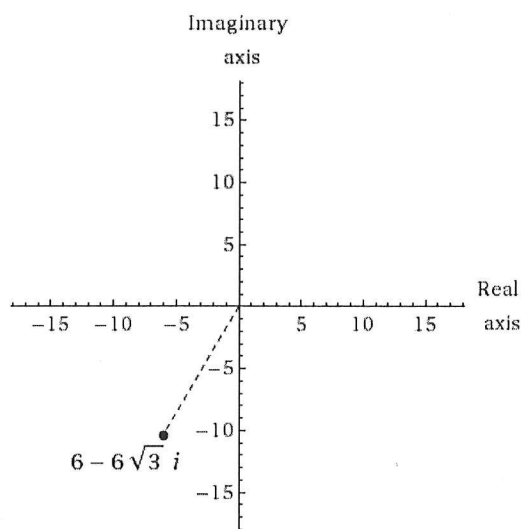
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6. -/2 points

LarTrig8 4.3.018.MI.

Represent the complex number graphically.

$$6 - 6\sqrt{3}i$$

Write the trigonometric form of the number. (Let $0 \leq \theta < 2\pi$.)

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7. -/17 points

LarTrig8 4.3.018.MI.SA.

This question has several parts that must be completed sequentially. If you skip a part of the question, you will not receive any points for the skipped part, and you will not be able to come back to the skipped part.

Tutorial Exercise

Represent the complex number graphically, and find the trigonometric form of the number.

$$3 - 3\sqrt{3}i$$

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8. -/1 points

LarTrig8 4.3.046.

Use a graphing utility to represent the complex number in standard form. (Round your answers to four decimal places.)

$$7\left(\cos \frac{2\pi}{5} + i \sin \frac{2\pi}{5}\right)$$

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9. -/1 points

LarTrig8 4.3.054.MI.

Perform the operation and leave the result in trigonometric form. (Enter your angles in degrees between 0° and 360° .)

$$\left[\frac{1}{3}(\cos 100^\circ + i \sin 100^\circ)\right] \left[\frac{5}{6}(\cos 310^\circ + i \sin 310^\circ)\right]$$

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10. -/1 points

LarTrig8 4.3.058.MI.

Perform the operation and leave the result in trigonometric form. (Let $0 \leq \theta < 360^\circ$.)

$$\frac{\cos 160^\circ + i \sin 160^\circ}{8(\cos 80^\circ + i \sin 80^\circ)}$$

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11. -/6 points

LarTrig8 4.3.058.MI.SA.

This question has several parts that must be completed sequentially. If you skip a part of the question, you will not receive any points for the skipped part, and you will not be able to come back to the skipped part.

Tutorial Exercise

Perform the operation and leave the result in trigonometric form.

$$\frac{4(\cos 170^\circ + i \sin 170^\circ)}{5(\cos 20^\circ + i \sin 20^\circ)}$$

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12. -/1 points

LarTrig8 4.3.062.

Perform the operation and leave the result in trigonometric form. (Let $0 \leq \theta < 360^\circ$.)

$$\frac{5(\cos 42^\circ + i \sin 42^\circ)}{6(\cos 104^\circ + i \sin 104^\circ)}$$

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13. -/4 points

LarTrig8 4.3.064.

Consider the following.

$$(1 + \sqrt{3}i)(1 + i)$$

(a) Write the trigonometric forms of the complex numbers. (Let $0 \leq \theta < 2\pi$.)

$$(1 + \sqrt{3}i) = \text{[]}$$

$$(1 + i) = \text{[]}$$

(b) Perform the indicated operation using the trigonometric forms. (Let $0 \leq \theta < 2\pi$.)

(c) Perform the indicated operation using the standard forms, and check your result with that of part (b). (Round your answers to three decimal places.)

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14. -/4 points

LarTrig8 4.3.068.

Consider the following.

$$\frac{1 + \sqrt{3}i}{6 - 5i}$$

(a) Write the trigonometric forms of the complex number. (Let $0 \leq \theta < 2\pi$. Round your angles to three decimal places.)

$$1 + \sqrt{3}i = \text{[]}$$

$$6 - 5i = \text{[]}$$

(b) Perform the indicated operation using the trigonometric forms. (Let $0 \leq \theta < 2\pi$. Round your angles to three decimal places.)

(c) Perform the indicated operation using the standard forms, and check your result with that of part (b). (Round all numerical values to three decimal places.)

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