

**CHAPTER 8, FORM A
TRIGONOMETRY**

NAME _____
DATE _____

1. True or false: The sum of two nonreal complex numbers can be a real number.
2. Write $4 + \sqrt{-25}$ in standard form.
3. Evaluate: $i^2 + i^3 + i^4 + i^5$.

1. _____
2. _____
3. _____

Perform the indicated operations. Write answers in standard form.

4. $\frac{4+i}{3-2i}$
5. $(3-2i)^3$
6. $(3 \operatorname{cis} 30^\circ)^4$
7. $\frac{2(\cos 120^\circ + i \sin 120^\circ)}{5(\cos 30^\circ + i \sin 30^\circ)}$

4. _____
5. _____
6. _____
7. _____

Solve each equation.

8. $x^3 + 64 = 0$
9. $2x^2 + x = -3$
10. $x^2 = 2 - 2\sqrt{3}i$
11. Write $52(\cos 60^\circ + i \sin 60^\circ)$ in standard form.
12. Write $-2 - 2i$ in trigonometric form.
13. Find all square roots of $25i$. Express answers in standard form.
14. Find all complex fifth roots of -243 . Express answers in trigonometric form.
15. Write an equivalent equation in polar coordinates for $x^2 + y^2 = 16$.
16. Write an equivalent equation in rectangular coordinates for $r = 6 \sin \theta$.

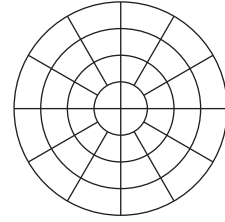
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____

15. _____
16. _____

CHAPTER 8, FORM A, PAGE 2

17. Graph: $r = 3 \sin \theta$, for θ in $[0, 360^\circ)$.

17.



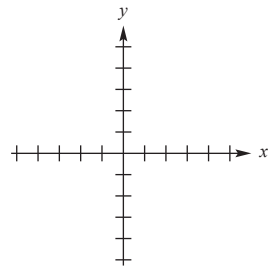
18. Write a rectangular equation for the plane curve with the following parametric equations:

$$x = \cos t, y = 3 \sin t, \text{ for } t \text{ in } [0, 2\pi].$$

18.

19. Graph: $x = t, y = t^2$, for t in $[-2, 2]$.

19.



20. Show that the graph of $x = 2 \cos t, y = 2 \sin t$ in $[0, 2\pi)$, is a circle centered at the origin with radius 2.

20.

**CHAPTER 8, FORM B
TRIGONOMETRY**

NAME _____
DATE _____

1. True or false: 2 is not a complex number.
2. Write $\sqrt{3} + \sqrt{-49}$ in standard form.
3. Evaluate: $i^2 \cdot i^3 \cdot i^4 \cdot i^5$.

1. _____
2. _____
3. _____

Perform the indicated operations. Write answers in standard form.

4. $\frac{-4 + 4i}{3 + i}$
5. $(4 + 5i)^3$
6. $(2 \text{ cis } 45^\circ)^4$
7. $\frac{3(\cos 150^\circ + i \sin 150^\circ)}{4(\cos 60^\circ + i \sin 60^\circ)}$

4. _____
5. _____
6. _____
7. _____

Solve each equation.

8. $x^3 - 27 = 0$
9. $3x^2 + 2x = -5$
10. $x^2 = 1 + 2i\sqrt{2}$
11. Write $13(\cos 120^\circ + i \sin 120^\circ)$ in standard form.
12. Write $-\sqrt{2} + i\sqrt{2}$ in trigonometric form.
13. Find all cube roots of -27 . Express answers in standard form.
14. Find all complex fourth roots of -64 . Express answers in trigonometric form.

8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____

15. Write an equivalent equation in polar coordinates for $x = 2$.

15. _____

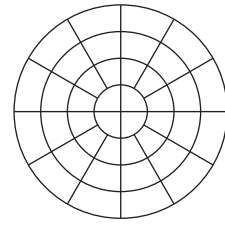
16. Write an equivalent equation in rectangular coordinates for $r = 3$.

16. _____

CHAPTER 8, FORM B, PAGE 2

17. Graph: $r^2 = 4 \cos 2\theta$, for θ in $[0, 360^\circ)$.

17.



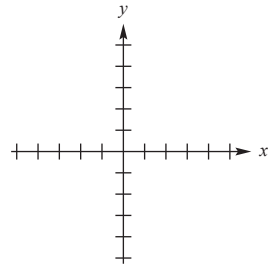
18. Write a rectangular equation for the plane curve with the following parametric equations:

$$x = 4t, y = \sqrt{2t-1}, \text{ for } t \text{ in } [1, 5].$$

18.

19. Graph: $x = t^2, y = t$, for t in $[-2, 2]$.

19.



20. Show that the graph of $x = 3 \sin t, y = 3 \cos t$, for t in $[0, 2\pi)$, is a circle centered at the origin with radius 3.

20.

**CHAPTER 8, FORM C
TRIGONOMETRY**

NAME _____
DATE _____

1. True or false: The product of two nonreal complex numbers can be a real number.
2. Write $7 + \sqrt{-50}$ in standard form.
3. Evaluate: $(i^2 - i^4)^7$.

1. _____
2. _____
3. _____

Perform the indicated operations. Write answers in standard form.

4. $\frac{-1+2i}{5-3i}$
5. $(2+3i)^2$
6. $(2 \text{ cis } 45^\circ)^4$
7. $\frac{4(\cos 135^\circ + i \sin 135^\circ)}{5(\cos 90^\circ + i \sin 90^\circ)}$

4. _____
5. _____
6. _____
7. _____

Solve each equation.

8. $x^3 + 8 = 0$
9. $5x^2 + 2x = -1$
10. $x^2 = -2 + 2i\sqrt{3}$
11. Write $9(\cos 45^\circ + i \sin 45^\circ)$ in standard form.
12. Write $-4\sqrt{3} + 4i$ in trigonometric form.
13. Find all fourth roots of 81. Express answers in standard form.
14. Find all complex fourth roots of $625i$. Express answers in trigonometric form.
15. Write an equivalent equation in polar coordinates for $y = 2x^2$.
16. Write an equivalent equation in rectangular coordinates for $r = 4 \cos \theta$.

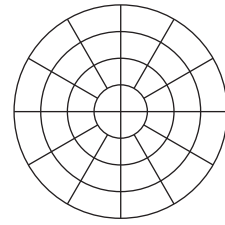
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____

15. _____
16. _____

CHAPTER 8, FORM C, PAGE 2

17. Graph: $r = 4 \cos 2\theta$, for θ in $[0, 360^\circ)$.

17.



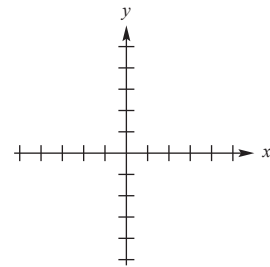
18. Write a rectangular equation for the plane curve with the following parametric equations:

$$x = 3t + 1, y = t^3, \text{ for } t \text{ in } [-2, 3].$$

18.

19. Graph: $x = t + 1, y = t^2$, for t in $[-2, 2]$.

19.



20. Show that the graph of

$$x = \frac{1}{2} \sin t, y = \frac{1}{2} \cos t,$$

for t in $[0, 2\pi)$, is a circle centered at the origin with radius $\frac{1}{2}$.

20.

**CHAPTER 8, FORM D
TRIGONOMETRY**

NAME _____
DATE _____

1. True or false: The conjugate of $2 + 3i$ is $2 - 3i$.

1. _____

2. Write $\sqrt{36} + \sqrt{-8}$ in standard form.

2. _____

3. Evaluate: $(i^2 \cdot i^4)^8$.

3. _____

Perform the indicated operations. Write answers in standard form.

4. $\frac{1 - 5i}{2 + 3i}$

4. _____

5. $(4 - i)^3$

5. _____

6. $(2 \text{ cis } 60^\circ)^4$

6. _____

7. $\frac{5(\cos 150^\circ + i \sin 150^\circ)}{2(\cos 30^\circ + i \sin 30^\circ)}$

7. _____

Solve each equation.

8. $x^3 - 125 = 0$

8. _____

9. $3x^2 - 2x = -1$

9. _____

10. $x^2 = -1 - 2i\sqrt{2}$

10. _____

11. Write $12(\cos 45^\circ + i \sin 45^\circ)$ in standard form.

11. _____

12. Write $-3\sqrt{3} + 3i$ in trigonometric form.

12. _____

13. Find all square roots of $49i$. Express answers in standard form.

13. _____

14. Find all complex fifth roots of -32 . Express answers in trigonometric form.

14. _____

15. Write an equivalent equation in polar coordinates for $x^2 + y^2 = 36$.

15. _____

16. Write an equivalent equation in rectangular coordinates for $r = 3 \cos \theta + 3 \sin \theta$.

16. _____