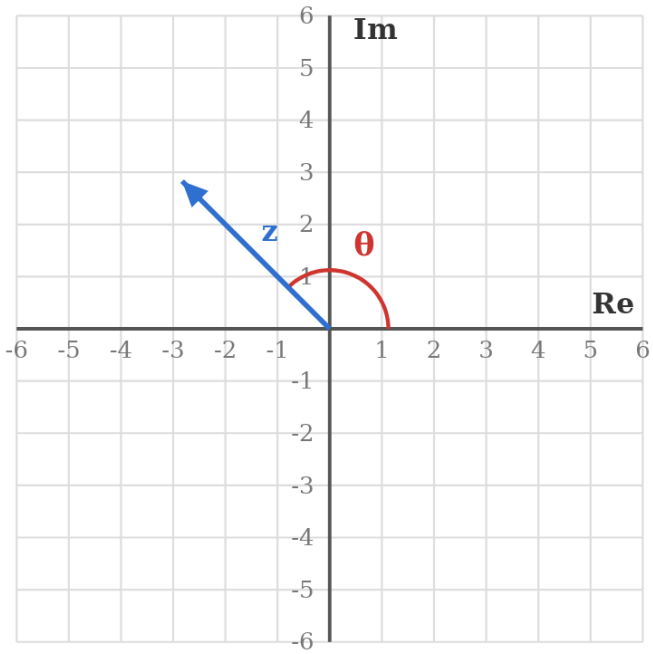
Name

Complex Numbers - Polar Form

1 What is the principal argument of the plotted complex number, in degrees?



A

$-135°$

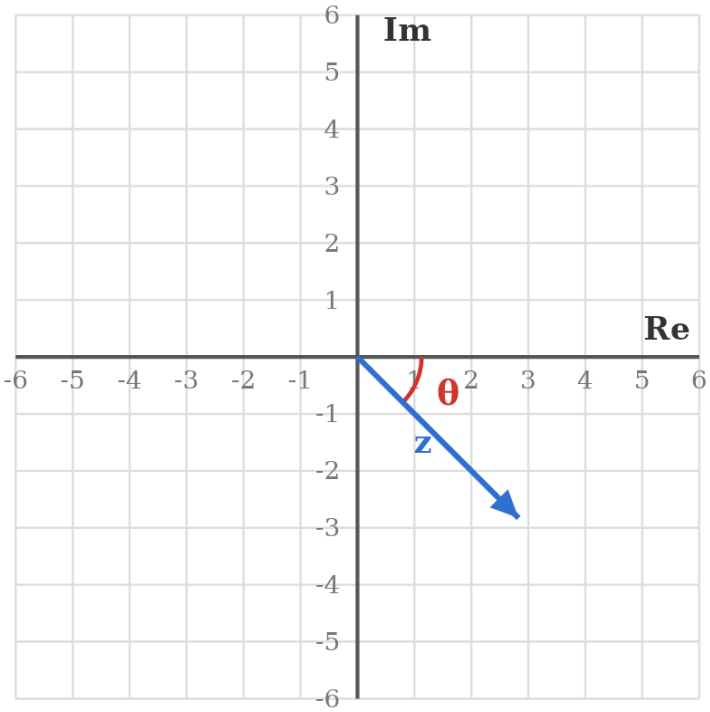
B

$45°$

C

$135°$

2 What is the principal argument of the plotted complex number, in radians?



A

$\frac{\pi}{4}$

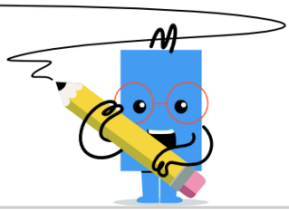
B

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

C

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

Name



Complex Numbers - Polar Form

3 What is the principal argument of this complex number, in degrees?

$$\sqrt{3}+i$$

A $150°$	B $-30°$
C $-60°$	D $120°$
E $30°$	

4 Which angle is coterminal with an argument of 30°?

A complex number has argument 30°.

A -30°	B -330°
C 150°	D 210°

5 What is the modulus of this complex number?

$$4+4i$$

A 8	B $\sqrt{34}$
C $\sqrt{0}$	D $4\sqrt{2}$

6 What is the principal argument of this complex number, in degrees?

$$2i$$

A $180°$	B $-90°$
C $0°$	D $90°$

7 Convert the given angle in degrees to radians

$$135°$$

A $\frac{3\pi}{6}rad$	B $\frac{4\pi}{4}rad$	C $\frac{5\pi}{4}rad$
D $\frac{3\pi}{3}rad$	E $\frac{3\pi}{4}rad$	F $\frac{2\pi}{4}rad$

8 Convert the given angle in radians to degrees

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

A $270°$	B $315°$
C $0°$	D $90°$
E $135°$	F $45°$

9 Which modulus and argument describe this complex number?

$$-3+3i$$

A $r=6,\ \theta=135°$
B $r=3\sqrt{2},\ \theta=-135°$
C $r=3\sqrt{2},\ \theta=135°$

10 Which polar form represents this complex number?

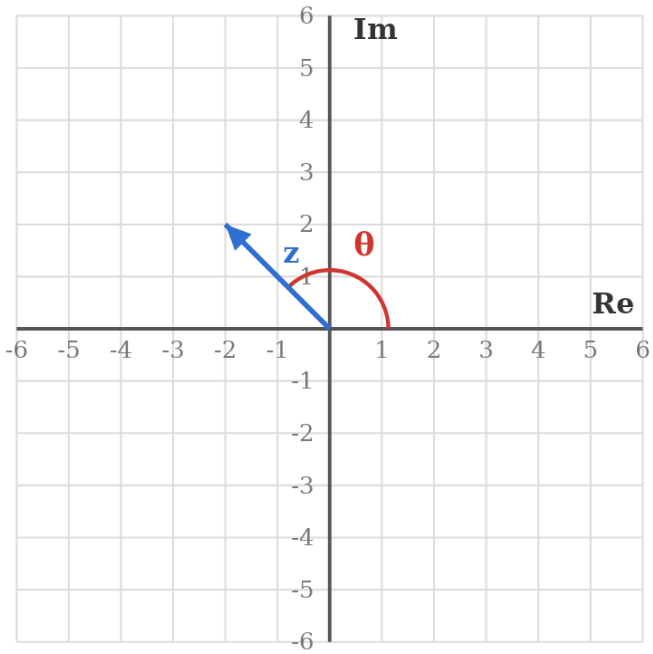
$$2-2i$$

A $2\sqrt{2}\left(\cos 45° + i\sin 45°\right)$
B $4\left(\cos 315° + i\sin 315°\right)$
C $2\sqrt{2}\left(\cos 315° + i\sin 315°\right)$

Name

Complex Numbers - Polar Form

11 Which polar form represents the plotted complex number?



A
$$2\sqrt{2}\,(\cos 135° + i \sin 135°)$$

B
$$2\sqrt{2}\,(\cos 315° + i \sin 315°)$$

C
$$4\,(\cos 135° + i \sin 135°)$$

D
$$2\sqrt{2}\,(\cos 225° + i \sin 225°)$$

12 What are the real and imaginary components of this complex number?

$$4\,(\cos 150° + i \sin 150°)$$

A $a = -2\sqrt{3},\ b = -2$

B $a = 2\sqrt{3},\ b = 2$

C $a = 2,\ b = -2\sqrt{3}$

D $a = -2\sqrt{3},\ b = 2$

13 Which rectangular form represents this complex number?

$$2\,(\cos 90° + i \sin 90°)$$

A -2

B $-2i$

C $2i$

14 When you multiply two complex numbers in polar form, what is the modulus of the product?

A 2

B 4

C 3

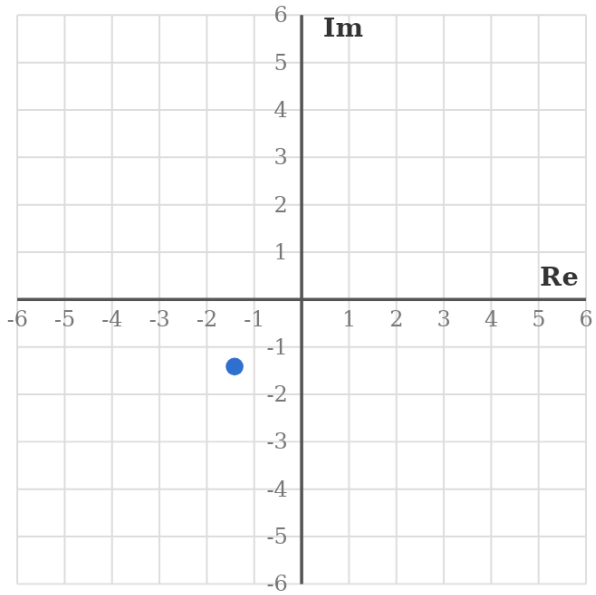
Name

Complex Numbers - Polar Form

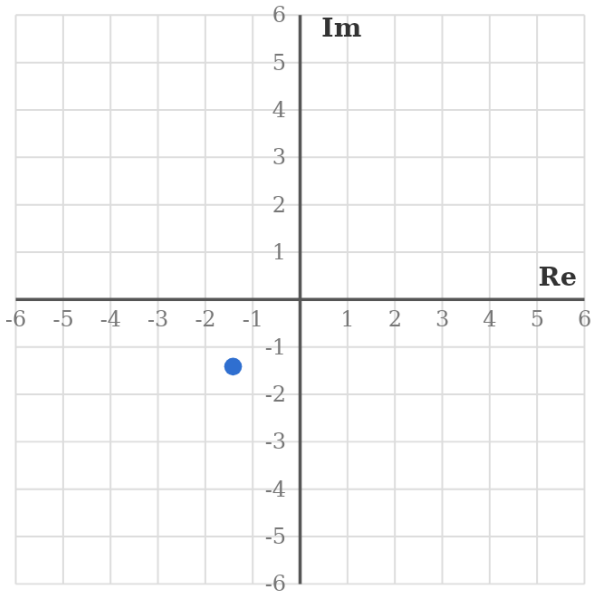
15 Which graph plots this complex number?

$$2\left(\cos 225° + i \sin 225°\right)$$

A



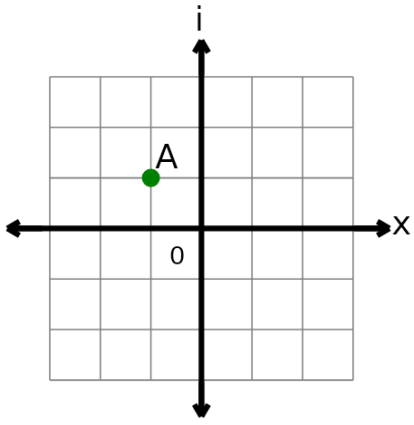
B



16 When you multiply two complex numbers in polar form, what is the argument of the product?

A $195°$	B $75°$
C $180°$	D $225°$

17 Find the absolute value of the point labelled 'A' on the complex plane



A -1	B 1.1	C 3.1
D 1.9	E 1.4	F 1

18 Find the rectangular form of the complex number that has a modulus and argument (r, θ) of

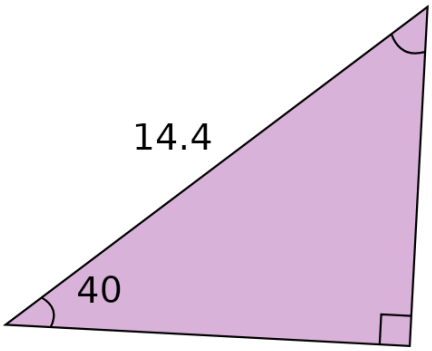
$$(4.5, 297°)$$

A $3-4i$	B $5-4i$
C $3+1i$	D $3i$
E $2-4i$	F $4i$

Name

Complex Numbers - Polar Form

19 Solve for the side length with trigonometry



A $b = 11.0$	B $b = 12.1$
C $b = 14.3$	D $b = 8.8$
E $b = 13.2$	F $b = 6.6$

20 Find the modulus and argument (r, θ) in degrees of this complex number

$$3 - 3i$$

A $(5.4, 68°)$	B $(12.2, 261°)$
C $(6.7, 63°)$	D $(14.1, 262°)$
E $(9.8, 294°)$	F $(4.2, 315°)$

21 Find the rectangular form of the complex number that has a modulus and argument (r, θ) of

$$(6.7, 1.6\pi\ rad)$$

A $1 - 5i$	B $-3i$
C $3 - 6i$	D $-1 - 6i$
E $1 - 6i$	F $-2 - 6i$

22 Find the modulus and argument (r, θ) in radians of this complex number

$$-5 + 2i$$

A $(6.4, 0.3\pi\ rad)$	B $(2, 1\frac{1}{2}\pi\ rad)$
C $(5.4, 0.9\pi\ rad)$	D $(7.3, 0.4\pi\ rad)$
E $(6.4, 0.2\pi\ rad)$	F $(2.2, 0.6\pi\ rad)$

23 Find the polar form in degrees of this complex number

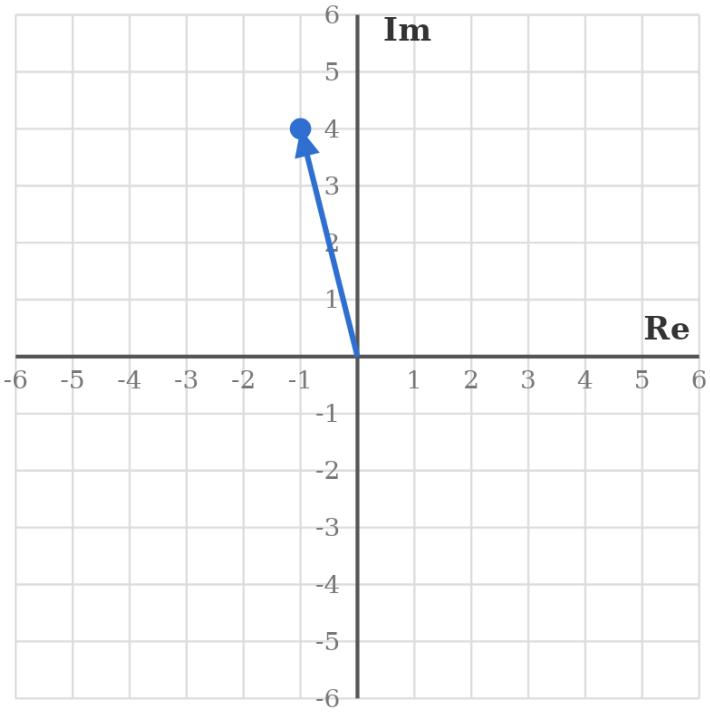
$$-3 - 5i$$

A $5.8(cos(239°) + i \cdot sin(239°))$	B $16(cos(69°) + i \cdot sin(69°))$
C $11.8(cos(324°) + i \cdot sin(324°))$	D $11.2(cos(53°) + i \cdot sin(53°))$
E $12.4(cos(320°) + i \cdot sin(320°))$	F $7.5(cos(328°) + i \cdot sin(328°))$

Name

Complex Numbers - Polar Form

24 What is the modulus of the plotted complex number?



A $\sqrt{17}$

B 5

C $3\sqrt{2}$

D $\sqrt{15}$

25 Find the rectangular form of this polar form complex number

$7.2(cos(236°) + i \cdot sin(236°))$

A	$-4-5i$	B	$-4-7i$
C	$-4-6i$	D	$-2-4i$
E	$-3-6i$	F	$-3-9i$

26 Find the rectangular form of this polar form complex number

$4.2(cos(0.3\pi\ rad) + i \cdot sin(0.3\pi\ rad))$

A	$-6-3i$	B	$7-1i$
C	$3+3i$	D	$8-3i$
E	$-3+1i$	F	$7-3i$

27 Find the polar form in radians of this complex number

$4-5i$

A	$15(cos(0.3\pi\ rad) + i \cdot sin(0.3\pi\ rad))$	B	$11.9(cos(1.7\pi\ rad) + i \cdot sin(1.7\pi\ rad))$
C	$6.4(cos(1.7\pi\ rad) + i \cdot sin(1.7\pi\ rad))$	D	$12(cos(\frac{1}{6}\pi\ rad) + i \cdot sin(\frac{1}{6}\pi\ rad))$
E	$15.8(cos(0.3\pi\ rad) + i \cdot sin(0.3\pi\ rad))$	F	$13.7(cos(1.8\pi\ rad) + i \cdot sin(1.8\pi\ rad))$