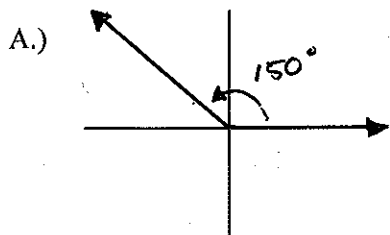


Coterminal and Reference Angle Practice

Trigonometer

KEY

I. Consider the angle θ in standard position such that $\theta = 150^\circ$. Draw the angle, and find each of the following.



B.) The quadrant in which θ terminates

• II

C.) The reference angle for θ

• 30°

D.) A positive angle coterminal with θ

• $150 + 360 = 510^\circ$

E.) A negative angle coterminal with θ

• $150 - 360 = -210^\circ$

F.) An angle with the same reference angle as θ in...

1.) Q1

30°

2.) Q2

510°

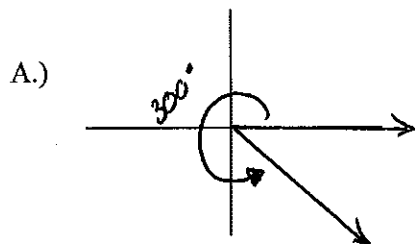
3.) Q3

210°

4.) Q4

330°

II. Consider the angle ϕ (psi) in standard position such that $\phi = 300^\circ$. Find each of the following.



B.) The quadrant in which ϕ terminates

• IV

C.) The reference angle for ϕ

• 60°

D.) A positive angle coterminal with ϕ

• $360 + 300 = 660^\circ$

E.) A negative angle coterminal with ϕ

• $300 - 360 = -60^\circ$

F.) An angle with the same reference angle as ϕ in...

1.) Q1

60°

2.) Q2

120°

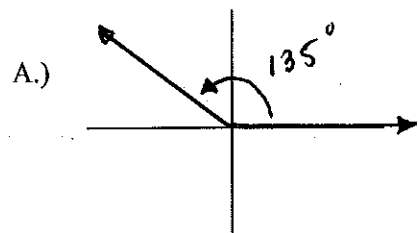
3.) Q3

240°

4.) Q4

660°

III. Consider the angle β (beta) in standard position such that $\beta = 135^\circ$. Find each of the following.



B.) The quadrant in which β terminates

• II

C.) The reference angle for β

• 45°

D.) A positive angle coterminal with β

• $135 + 360 = 495^\circ$

E.) A negative angle coterminal with β

• $135 - 360 = -225^\circ$

F.) An angle with the same reference angle as β in...

1.) Q1

45°

2.) Q2

495°

3.) Q3

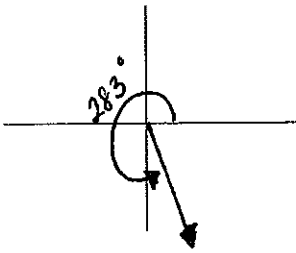
225°

4.) Q4

315°

IV. Consider the angle θ in standard position such that $\theta = 283^\circ$. Draw the angle, and find each of the following.

A.)



B.) The quadrant in which θ terminates

• IV

C.) The reference angle for θ

• $360 - 283 = 77$

D.) A positive angle coterminal with θ

• $283 + 360 = 643^\circ$

E.) A negative angle coterminal with θ

• $283 - 360 = -77^\circ$

F.) An angle with the same reference angle as θ in...

1.) Q1 77°

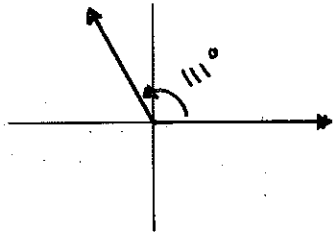
2.) Q2 103°

3.) Q3 257°

4.) Q4 643°

V. Consider the angle φ (psi) in standard position such that $\varphi = 111^\circ$. Find each of the following.

A.)



B.) The quadrant in which φ terminates

• II

C.) The reference angle for φ

• $180 - 111 = 69^\circ$

D.) A positive angle coterminal with φ

• $111 + 360 = 471^\circ$

E.) A negative angle coterminal with φ

• $111 - 360 = -249^\circ$

F.) An angle with the same reference angle as φ in...

1.) Q1 69°

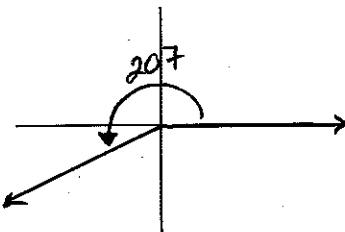
2.) Q2 471°

3.) Q3 249°

4.) Q4 291°

VI. Consider the angle β (beta) in standard position such that $\beta = 207^\circ$. Find each of the following.

A.)



B.) The quadrant in which β terminates

• III

C.) The reference angle for β

• $207 - 180 = 27^\circ$

D.) A positive angle coterminal with β

• $207 + 360 = 567^\circ$

E.) A negative angle coterminal with β

• $207 - 360 = -153^\circ$

F.) An angle with the same reference angle as φ in...

1.) Q1

27°

2.) Q2

153°

3.) Q3

567°

4.) Q4

333°