Name: _____ **ID: A**

MCR3U - WS - CAST Rule

1. The coordinates of a point on the terminal arm of an angle θ are $P(-2,-6)$. Determine the **exact primary trigonometric ratios** for θ.

2. The terminal arm of angle θ lies in quadrant 2, and one of the primary trigonometric ratios is $\tan\theta = -\frac{10}{8}$. Determine the value of θ.

3. The terminal arm of angle θ lies in quadrant 3, and one of the primary trigonometric ratios is $\cos\theta = -\frac{9}{22}$. Determine the value of θ.

4. The terminal arm of angle θ lies in quadrant 4, and one of the primary trigonometric ratios is $\sin\theta = -\frac{2}{24}$. Determine the value of θ.

5. The terminal arm of angle θ lies in quadrant 3, and one of the primary trigonometric ratios is $\sin\theta = -\frac{8}{14}$. Determine the value of θ.

6. The terminal arm of angle θ lies in quadrant 2, and one of the primary trigonometric ratios is $\cos\theta = -\frac{8}{19}$. Determine the value of θ.

7. The angle θ is in standard position, and $0° \le \theta < 360°$. One of the primary trigonometric ratios is given. Find the exact values of the other two primary trigonometric ratios.
$\sin\theta = -\frac{4}{11}$

8. Given that $\cos\theta$ is positive and $\tan\theta$ is negative, determine the quadrant for θ.

_____

9. Given that $\tan\theta$ is negative and $\sin\theta$ is negative, determine the quadrant for θ.

_____

10. Given that $\sin\theta$ is negative and $\cos\theta$ is negative, determine the quadrant for θ.

_____

11. Solve $\tan\theta = -1.6003$, where $0° \le \theta < 360°$.

12. Solve $\sin\theta = -0.7071$, where $0° \le \theta < 360°$.

13. Solve $\tan\theta = -2.0503$, where $0° \le \theta < 360°$.

14. Solve $\cos\theta = -0.9703$, where $0° \le \theta < 360°$.

15. Solve $\sin\theta = 0.342$, where $0° \le \theta < 360°$.

16. Solve $\sin\theta = -0.1392$, where $0° \le \theta < 360°$.

17. Solve $\sin\theta = -\frac{17}{23}$, where $0° \le \theta < 360°$.

18. Solve $\sin\theta = -\frac{3}{5}$, where $0° \le \theta < 360°$.

19. Solve $\cos\theta = -\frac{5}{18}$, where $0° \le \theta < 360°$.

20. Solve $\tan\theta = \frac{5}{11}$, where $0° \le \theta < 360°$.

21. Solve $\sin\theta = -\frac{3}{17}$, where $0° \le \theta < 360°$.

22. The coordinates of a point on the terminal arm of an angle θ are $P(11,-6)$. Sketch the point and terminal arm, then determine the **exact primary trigonometric ratios** for θ. Show your work.

23. The coordinates of a point on the terminal arm of an angle θ are $P(-6,-7)$. Sketch the point and terminal arm, then determine the **exact primary trigonometric ratios** for θ. Show your work.

MCR3U - WS - CAST Rule
Answer Section

1. ANS:
   x2 = 4 y2 = 36 r2 = 40
   x = -2 y = -6 r = 6.324555320337
   $\sin\theta = -\frac{6}{\sqrt{40}}$ $\cos\theta = -\frac{2}{\sqrt{40}}$ $\tan\theta = \frac{6}{2}$

   PTS: 1
2. ANS:
   RAA: 51.3°
   Quadrant 2
   Principal Angle: 128.7°

   PTS: 1
3. ANS:
   RAA: 65.9°
   Quadrant 3
   Principal Angle: 245.9°

   PTS: 1
4. ANS:
   RAA: 4.8°
   Quadrant 4
   Principal Angle: 355.2°

   PTS: 1
5. ANS:
   RAA: 34.8°
   Quadrant 3
   Principal Angle: 214.8°

   PTS: 1
6. ANS:
   RAA: 65.1°
   Quadrant 2
   Principal Angle: 114.9°

   PTS: 1
7. ANS:
   RAA: 21.3°
   Quadrant 4
   Principal Angle: 338.7°

   PTS: 1

COMMUNICATION	No Level	0 1 2 3 4	5	6	7	8	9	10
Conventions & Terminology	No level assigned based on content of this page	Unacceptable	Few Major / Many Minor Errors		Few Minor Errors		No Errors	
Expression & Organization			Significant Improvements Required		Few Improvements Required		No Improvements Required	

8. ANS:
quadrant IV

PTS: 1
9. ANS:
quadrant IV

PTS: 1
10. ANS:
quadrant III

PTS: 1
11. ANS:
$\theta = 122°$ $\theta = 302°$

PTS: 1
12. ANS:
$\theta = 225°$ $\theta = 315°$

PTS: 1
13. ANS:
$\theta = 116°$ $\theta = 296°$

PTS: 1
14. ANS:
$\theta = 166°$ $\theta = 194°$

PTS: 1
15. ANS:
$\theta = 20°$ $\theta = 160°$

PTS: 1
16. ANS:
$\theta = 188°$ $\theta = 352°$

PTS: 1
17. ANS:
$\theta = 227.7°$ $\theta = 312.3°$

PTS: 1
18. ANS:
$\theta = 216.9°$ $\theta = 323.1°$

PTS: 1

COMMUNICATION	No Level	0 1 2 3 4	5	6	7	8	9	10
Conventions & Terminology	No level assigned based on content of this page	Unacceptable	Few Major / Many Minor Errors		Few Minor Errors		No Errors	
Expression & Organization			Significant Improvements Required		Few Improvements Required		No Improvements Required	

19. ANS:

$\theta = 106.1°$ $\theta = 253.9°$

PTS: 1

20. ANS:

$\theta = 24.4°$ $\theta = 204.4°$

PTS: 1

21. ANS:

$\theta = 190.2°$ $\theta = 349.8°$

PTS: 1

22. ANS:

$x^2 = 121$ $y^2 = 36$ $r^2 = 157$

x = 11 y = -6 r = 12.529964086142

$\sin\theta = -\frac{6}{\sqrt{157}}$ $\cos\theta = \frac{11}{\sqrt{157}}$ $\tan\theta = -\frac{6}{11}$

PTS: 1

23. ANS:

$x^2 = 36$ $y^2 = 49$ $r^2 = 85$

x = -6 y = -7 r = 9.219544457293

$\sin\theta = -\frac{7}{\sqrt{85}}$ $\cos\theta = -\frac{6}{\sqrt{85}}$ $\tan\theta = \frac{7}{6}$

PTS: 1

COMMUNICATION	No Level	0 1 2 3 4	5	6	7	8	9	10
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