Regents Exam Questions
F.TF.A.2: Finding the Terminal Side of an Angle 1
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Name: _____

F.TF.A.2: Finding the Terminal Side of an Angle 1

1 If $\sin \theta > 0$ and $\sec \theta < 0$, in which quadrant does the terminal side of angle θ lie?
1) I
2) II
3) III
4) IV

2 If $\sin \theta < 0$ and $\cot \theta > 0$, in which quadrant does the terminal side of angle θ lie?
1) I
2) II
3) III
4) IV

3 If the tangent of an angle is negative and its secant is positive, in which quadrant does the angle terminate?
1) I
2) II
3) III
4) IV

4 If $\sin \theta$ is negative and $\cos \theta$ is negative, in which quadrant does the terminal side of θ lie?
1) I
2) II
3) III
4) IV

5 If $\sec x < 0$ and $\cot x < 0$, in which quadrant does the terminal side of angle x lie?
1) I
2) II
3) III
4) IV

6 If $\sec x < 0$ and $\tan x < 0$, then the terminal side of angle x is located in Quadrant
1) I
2) II
3) III
4) IV

7 If $\sin A < 0$ and $\tan A > 0$, in which quadrant does the terminal side of $\angle A$ lie?
1) I
2) II
3) III
4) IV

8 If $\sin \theta$ is less than 0 and $\sec \theta$ is greater than 0, in which quadrant does the terminal side of θ lie?
1) I
2) II
3) III
4) IV

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9   If $\cos \theta > 0$ and $\csc \theta < 0$, in which quadrant does
    the terminal side of θ lie?
    1)   I
    2)   II
    3)   III
    4)   IV

10 If $\sin A > 0$ and $(\sin A)(\cos A) < 0$, in which
    quadrant does $\angle A$ terminate?
    1)   I
    2)   II
    3)   III
    4)   IV

11 If $\tan \theta = 2.7$ and $\csc \theta < 0$, in which quadrant does
    θ lie?
    1)   I
    2)   II
    3)   III
    4)   IV

12 If $\cos x = -0.7$ and $\csc x > 0$, the terminal side of
    angle x is located in Quadrant
    1)   I
    2)   II
    3)   III
    4)   IV

13 If $\cos x = -\dfrac{4}{5}$ and $\tan x > 0$, then $\angle x$ terminates in

    Quadrant
    1)   I
    2)   II
    3)   III
    4)   IV

14 If $\tan x = -3$ and $\sin x > 0$, then angle x terminates
    in Quadrant
    1)   I
    2)   II
    3)   III
    4)   IV

15 If $\tan x = -\dfrac{3}{2}$ and $\cos x > 0$, then angle x terminates
    in Quadrant
    1)   I
    2)   II
    3)   III
    4)   IV

16 If $\sin x = -\dfrac{1}{3}$ and $\sin x \cos x > 0$, in which quadrant
    does angle x lie?
    1)   I
    2)   II
    3)   III
    4)   IV

17 If $\sin A = -\dfrac{5}{13}$ and $\cos A > 0$, angle A terminates in
    Quadrant
    1)   I
    2)   II
    3)   III
    4)   IV

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18 If $\cos x = -\dfrac{\sqrt{2}}{2}$, in which quadrants could $\angle x$ terminate?
1) I and IV
2) I and III
3) II and IV
4) II and III

19 If $\tan x = -\sqrt{3}$, in which quadrants could angle x terminate?
1) I and III
2) II and III
3) II and IV
4) III and IV

20 If $\sin \theta = \dfrac{1 - \sqrt{17}}{4}$, then angle θ lies in which quadrants?
1) I and II, only
2) II and IV, only
3) III and IV, only
4) I, II, III, and IV

21 If $\tan \theta = \dfrac{1 + \sqrt{3}}{4}$, then angle θ may terminate in Quadrants
1) I or III, only
2) II or IV, only
3) III or IV, only
4) I, II, III, or IV

22 If $\sin \theta = \cos \theta$, in which quadrants may angle θ terminate?
1) I, II
2) II, III
3) I, III
4) I, IV

23 If $(\sec x - 2)(2 \sec x - 1) = 0$, then x terminates in
1) Quadrant I, only
2) Quadrants I and II, only
3) Quadrants I and IV, only
4) Quadrants I, II, III, and IV

24 Which functions are positive for angles terminating in Quadrant II?
1) sine and cosine
2) sine and secant
3) sine and tangent
4) sine and cosecant

25 Which trigonometric function is positive in Quadrant IV?
1) $\sin x$
2) $\sec x$
3) $\csc x$
4) $\cot x$

26 An angle, P, drawn in standard position, terminates in Quadrant II if
1) $\cos P < 0$ and $\csc P < 0$
2) $\sin P > 0$ and $\cos P > 0$
3) $\csc P > 0$ and $\cot P < 0$
4) $\tan P < 0$ and $\sec P > 0$

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Answer Section

1 ANS: 2
   If $\sin\theta > 0$, then the terminal side of θ lies in either Quadrant I or II. If $\sec\theta < 0$, then $\cos\theta < 0$ and the terminal side of θ lies in either Quadrant II or III.

   REF: 060302b

2 ANS: 3   REF: 061412a2

3 ANS: 4
   If the secant of an angle is positive, the cosine of the angle is positive and the terminal side of the angle lies in either Quadrant I or IV. If the tangent of an angle is negative, then the signs of the cosine and sine of that angle must be opposite. Since the cosine of the angle is positive, the sine of the angle must be negative and the terminal side of the angle lies in either Quadrant III or IV.

   REF: 080410b

4 ANS: 3
   If $\sin\theta$ is negative, the terminal side of θ lies in either Quadrant III or IV. If $\cos\theta$ is negative, the terminal side of θ lies in either Quadrant II or III.

   REF: 060502b

5 ANS: 2   REF: 010432siii
6 ANS: 2   REF: 080035siii
7 ANS: 3   REF: 080112siii
8 ANS: 4   REF: 060226siii
9 ANS: 4   REF: 080321siii
10 ANS: 2   REF: 019718siii

11 ANS: 3
   If the cosecant of an angle is negative, the sine of the angle is negative and the terminal side of the angle lies in either Quadrant III or IV. If the tangent of an angle is positive, then the signs of the cosine and sine of that angle must be the same. Since the sine of the angle is negative, the cosine of the angle must also be negative and the terminal side of the angle lies in either Quadrant II or III.

   REF: 060609b

12 ANS: 2   REF: 011008b
13 ANS: 3   REF: 068132siii
14 ANS: 2   REF: 018526siii
15 ANS: 4   REF: 068823siii
16 ANS: 3   REF: 069028siii
17 ANS: 4   REF: 010217siii
18 ANS: 4   REF: 069823siii
19 ANS: 3   REF: 089921siii
20 ANS: 3   REF: 068029siii
21 ANS: 1   REF: 088717siii
22 ANS: 3   REF: 068725siii

23 ANS: 3

$(\sec x - 2)(2\sec x - 1) = 0$

$\sec x - 2 = 0 \quad 2\sec x - 1 = 0$

$\sec x = 2 \qquad \sec x = \dfrac{1}{2}$

$\cos x = \dfrac{1}{2} \qquad \cos x = 2$

$x = \cos^{-1}\left(\dfrac{1}{2}\right) \qquad \cos x = 2$ has no solution

$x = 60°, 300°$

REF: 010317b

24 ANS: 4

Sine and its reciprocal, cosecant, are positive for angles terminating in Quadrant II.

REF: 080909b

25 ANS: 2 REF: 080220siii

26 ANS: 3

If $\csc P > 0$, $\sin P > 0$. If $\cot P < 0$ and $\sin P > 0$, $\cos P < 0$

REF: 061320a2