Sample Problems for Calculus (MATH 116 & MATH 122) Readiness Test

Answers to the following sample problems are given below. (You will have 45 minutes to do 25 problems on the actual test.)

1. $3(2^2 - 6) =$
   (a) $-6$  (b) 6  (c) 24  (d) 48  (e) none of these

2. $8^{-2/3} =$
   (a) $16\sqrt{2}$  (b) $\frac{1}{4}$  (c) $\frac{1}{3}$  (d) 4  (e) none of these

3. If angle $A$ lies in the first quadrant of the rectangular coordinate system and $\tan A = \frac{3}{4}$, then $\sec A =$
   (a) $\frac{4}{5}$  (b) $\frac{3}{5}$  (c) $\frac{5}{4}$  (d) 4  (e) none of these

4. If $\sin x - \cos x = 0$ and $0^\circ \leq x \leq 180^\circ$, then $x =$
   (a) $45^\circ$  (b) $90^\circ$  (c) $135^\circ$  (d) $-1$  (e) none of these

5. $\log_2 8 =$
   (a) 16  (b) 9  (c) 4  (d) 3  (e) none of these

6. The graph of $y = \sqrt{9 - x^2}$ is
   (a) a semicircle  (b) an ellipse  (c) a parabola  (d) a point
   (e) none of these

7. The minimum value attained by $y = 3\sin(4x + 5)$ is
   (a) 3  (b) 4  (c) 5  (d) -3  (e) none of these

8. The slope of the straight line given by $2x + 3y = 4$ is
   (a) 2  (b) 3  (c) $\frac{3}{2}$  (d) $-\frac{2}{3}$  (e) none of these

9. For a circle, circumference $C = 2\pi r$ and diameter $d = 2r$, where $r$ is the circle’s radius. Express $C$ in terms of $d$. $C =$
   (a) $4\pi d$  (b) $2\pi d$  (c) $\pi d$  (d) $\frac{\pi}{d}$  (e) none of these
10. \( \cos \left( \frac{3\pi}{4} \right) = \)

(a) \(-\frac{\sqrt{2}}{2}\)  
(b) \(\frac{1}{2}\)  
(c) \(-\frac{1}{2}\)  
(d) \(\frac{\sqrt{3}}{2}\)  
(e) none of these

Answers: 1-a, 2-b, 3-c, 4-a, 5-d, 6-a, 7-d, 8-d, 9-c, 10-a