Practice Questions for CRT, Part 2

1. $\sin\left(\tan^{-1}\left(-\frac{5}{2}\right)\right) =$

   (a) $-\frac{\sqrt{29}}{2}$

   (b) $-\frac{5}{\sqrt{29}}$ ← correct

   (c) $-\frac{\sqrt{21}}{5}$

   (d) $-\frac{2}{5}$

   (e) $-\frac{2}{\sqrt{21}}$

2. If x is an angle in quadrant 2 and $\sin(x) = \frac{1}{3}$, then $\tan(x) = \ldots$

   (a) $-\frac{1}{\sqrt{8}}$ ← correct

   (b) $\frac{1}{\sqrt{8}}$

   (c) $\frac{3}{\sqrt{8}}$

   (d) $-\frac{3}{\sqrt{8}}$

   (e) $\frac{\sqrt{8}}{3}$

3. 300° is equal to what radian measure?

   (a) $\frac{3\pi}{5}$

   (b) $\frac{5\pi}{3}$ ← correct

   (c) $\frac{6\pi}{5}$

   (d) $\frac{5\pi}{6}$

   (e) $\frac{5\pi}{2}$

4. Which of the following expressions has the same value as $\cos(-225^\circ)$?

   (a) $\sin(225^\circ)$ ← correct

   (b) $\tan(135^\circ)$

   (c) $\sin(-225^\circ)$

   (d) $\cos(45^\circ)$

   (e) $\sin(45^\circ)$

5. Complete the identity: $1 - \cos^2(3x) = \ldots$

(a) $\sin^2(3x)$ ← correct

(b) $-\sin^2(3x)$

(c) $3\sin^2(x)$

(d) $\frac{1}{3}\sin^2(3x)$

(e) $\sqrt{\sin(3x)}$

6. If $\pi < x < \frac{7\pi}{6}$ then which of the following must be true?

(a) $\tan(x) < \sin(x)$

(b) $\cos(x) > \tan(x)$

(c) $\cos(x) < \sin(x)$ ← correct

(d) $\sin(x) < \cos(x)$

(e) $\tan(x) > 1$

7. Which of the following satisfies the equation $\sin(x) + 3\sin(x)\cos(x) = 2\sin(x)$?

(a) $x = \sin^{-1}\left(\frac{1}{2}\right)$

(b) $x = \tan\left(\frac{2}{3}\right)$

(c) $x = \sec(3)$

(d) $x = \cos^{-1}\left(\frac{1}{3}\right)$ ← correct

(e) $x = \frac{2\pi}{3}$

8. In a certain right triangle ABC the hypotenuse AB measures 17 cm and the leg AC measures 15 cm. What is the value of $\cos(\beta)$ where $\beta = \angle ABC$?

(a) $\frac{17}{8}$

(b) $\frac{15}{17}$

(c) $\frac{8}{15}$

(d) $\frac{15}{8}$

(e) $\frac{8}{17}$ ← correct

9. Find all the solutions of the equation $\sin(x) = \dfrac{\sqrt{3}}{2}$ for which $0 \leq x \leq \pi$.

(a) $x = \dfrac{\pi}{2}$

(b) $x = \dfrac{\pi}{3}$, $x = \dfrac{2\pi}{3}$ ← correct

(c) $x = \dfrac{\pi}{4}$, $x = \dfrac{3\pi}{4}$

(d) $x = \dfrac{\pi}{6}$, $x = \dfrac{5\pi}{6}$

(e) $x = 0$

10. $\sin^{-1}\left(\dfrac{1}{2}\right) =$

(a) $\dfrac{\pi}{3}$

(b) $\dfrac{\pi}{4}$

(c) $\dfrac{5\pi}{6}$

(d) $\dfrac{\pi}{6}$ ← correct

(e) $\dfrac{4\pi}{3}$