ALGEBRA 2/TRIGONOMETRY MIDTERM REVIEW – SPRING 2011

1. Write $(2x+1)^2-(x+2)^2$ in simplest form.
2. The solution of $x^2-5x=6$ is...
3. Write $\dfrac{a-\dfrac{1}{a}}{a+1}$ in simplest form.
4. The sum of $\left(3+\sqrt{12}\right)$ and $\left(-5+\sqrt{27}\right)$ is...
5. Which of the following products is rational?
   a. $\left(10+\sqrt{10}\right)\left(10+\sqrt{10}\right)$ b. $\left(10+\sqrt{10}\right)\left(10-\sqrt{10}\right)$ c. $\sqrt{10}\left(2+\sqrt{10}\right)$ d. $10\left(10-\sqrt{10}\right)$
6. Rationalize $\dfrac{1-\sqrt{3}}{1+\sqrt{3}}$.
7. Which of the following is a one-to-one function when the domain is all real numbers?
   a. $y=x-5$ b. $x^2+y^2=9$ c. $y=x^2-2x+5$ d. $y=|x-4|$
8. Find the roots of the equation $2x^2-$

b. Write $(f\circ g)(x)$ in simplest form.

16. Find reference angles.
    a. 107° b. -150° c. 408° d. 291°
17. The point $(9,-13)$ is on the terminal side of angle $\theta$. Find:
    a. $\sin\theta$ b. $\cos\theta$ c. $\tan\theta$ d. $\csc\theta$ e. $\sec\theta$ f.

cot $\theta$

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18. Find each exact function value. (In rational or radical form. NO ROU
    a. $\sin\dfrac{\pi}{4}$ b. $\cos\dfrac{\pi}{6}$ c. $\tan 120°$ d. $\csc 120°$

n to the base of an adjacent
ildings.

19. From the top of a building that is 56 feet high, the angle of depressio
    building is 72°. Find, to the nearest foot, the distance between the bu

fined?

20. Let $0\le\theta<2\pi$. For what two values of $\theta$ is each function value unde
    a. $\tan\theta$ b. $\csc\theta$ c. $\sec\theta$ d. $\cot\theta$