Math 1060
Summer 2008

EXAM

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Show all your work and make sure you justify all your answers.
Math 1060
Exam

1. This practice exam is not comprehensive and there are bound to be several mistakes/typos.

2. There will be at least one unidentified word problem on your exam (see section 4.8 in particular).

3. Solve the following equations for $x$.

(a) Solve $\cos^3(x) = \cos(x)$

(b) solve $\cos(x + \frac{\pi}{4}) - \cos(x - \frac{\pi}{4}) = 1$
(c) Solve $\sin(2x)\sin(x) = \cos(x)$

(d) Solve $\cos(2x) - \cos(x) = 0$
4. Do the following

(a) Given that $\sin(x) = \frac{2}{\sqrt{13}}$ and $\tan(x) < 0$ find $\cos\left(\frac{x}{2}\right)$, $\cos(2x)$, $\sin\left(\frac{x}{2}\right)$ and $\sin(2x)$.

(b) Write the following expression only in terms of $x$. $\cos(\arccos(5x) + \arcsin(1 - x))$
5. Do the following

(a) Substitute $x = 3\sin(z)$ into the equation $\sqrt{9 - x^2}$ and simplify.

(b) Prove the identity $\csc(x) - \sin(x) = \cos(x)\cot(x)$
(c) Verify \(\cot(3x) = \frac{\cos(4x)+\cos(2x)}{\sin(4x)+\sin(2x)}\).

(d) Verify \(\cos^4(x) - \sin^4(x) = \cos(2x)\)
6. Suppose that a triangle $ABC$ has an angle $A = 36$ degrees length $a = 8$
and length $b = 5$ Find the length $c$ and angles $C$ and $B$ of the triangle.