

How much do you remember from 3U math?

Name: _____

1. Simplify

a) $\frac{5ab^3 \times 2a^5b^3}{15a^3b^4}$ _____

b) $(-3x^4y^{-3})^{-4}$ _____

c) $\left(-\frac{27}{8}\right)^{\frac{2}{3}}$ _____

d) $\frac{y^2 - 8y + 15}{y^2 - 25}$ _____

e) $\frac{m^2 - 3m - 4}{m^2 + 5m} \div \frac{m^2 - 7m + 12}{m^2 + 2m - 15}$ _____

f) $\frac{2}{(t^2 + 3t + 2)} - \frac{1}{(t^2 + t - 2)}$ _____

g) $\frac{-8 + \sqrt{32}}{4}$ _____

2. Solve $16^{2p+1} = 8^{4p+5}$ _____

3. Evaluate the exact answers

a) $\sin 135^\circ$ _____

b) $\tan 330^\circ$ _____

4. Given the function $f(x) = 5x + 2$

a) Find $f(-2)$ _____

b) Find the value of x when $f(x) = 30$ _____

5. Sketch a) $y = 3\left(\sqrt{-\frac{1}{2}x}\right) + 5$ b) $y = 3\cos\frac{1}{3}x + 2$ c) $y = -2\sin 2(x - 45^\circ)$

(State the transformations before you sketch the graphs)

6. Prove the following Identities

a) $(\cos x - \sin x)^2 = 1 - 2\sin x \cos x$

b) $1 + \tan^2 x = \frac{1}{\cos^2 x}$

c) $\frac{\sin x}{(1 - \cos x)} - \frac{1 + \cos x}{\sin x} = 0$

7. Solve the equations for $0 \leq x \leq 360^\circ$

a) $\cos x = \frac{1}{\sqrt{2}}$

b) $2\sin x - 1 = 0$

c) $2\cos^2 x + 3\cos x = -1$

d) $\cos^2 x - 1 = \sin^2 x$

8. Solve the following quadratics:

a) $4x^2 - 11x = x - 9$ (by factoring)

b) $3m^2 + 8m - 8 = 0$ (by completing the square)

c) $4x^2 = 12x - 5$ (by quadratic formula)

d) The sum of the squares of 2 consecutive #'s is 421. Find the integers.

e) A right triangle has a perimeter of 3 m. Its hypotenuse is 130 cm. What are the lengths of the other 2 sides?