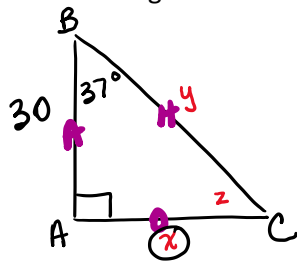


# Midterm Review #3

1. Given the  $\triangle ABC$ , where  $\angle A = 90^\circ$ ,  $AB = 30$  cm and  $\angle B = 37^\circ$ , write the 3 equations needed to solve the triangle. DO NOT SOLVE.



$$\frac{AC}{AB} = \tan 37 = \frac{z}{30}$$

$$\frac{BC}{AB} = \cos 37 = \frac{30}{y}$$

$$\angle C = 180 - 90 - 37$$

2. Simplify:  $\left(\frac{2x^5}{x^{-2}}\right)^4 \rightarrow \frac{2^4 \cdot x^{20}}{x^{-8}} \rightarrow \frac{2^4 x^{20} \cdot x^8}{1} \rightarrow 16x^{28}$

*power of power*  
*Negative exponent law*  
*mult. law*

3. Determine the  $\sin 75^\circ$  to 3 decimal places.

$$\sin 75 = 0.966$$

*use calculator*

4. Simplify:  $(5x-4)^2 - 2(x+7)$

$$(5x-4)(5x-4) - 2(x+7)$$

$$25x^2 - 20x - 20x + 16 - 2x - 14$$

$$25x^2 - 42x + 2$$

5. Factor completely:

PS a.  $x^2 + 14x + 24 \rightarrow (x+12)(x+2)$   
 C b.  $7x - 14y \rightarrow 7(x-2y)$   
 DoS c.  $9x^2 - 25 \rightarrow (3x-5)(3x+5)$   
 PS d.  $x^2 - 4x - 21 \rightarrow (x-7)(x+3)$

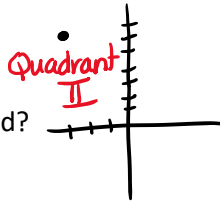
6. Identify the following in the expression  $2xy + 6x^4 + 3x^2 - 1$

- a) degree — 4  
 b) Leading coefficient 6  
 c) Coefficients 2, 6, 3  
 d) Constant -1  
 e) Type based on terms  $\rightarrow 4$  terms  $\rightarrow$  polynomial  
 f) Type based on variables degree  $\rightarrow$  quartic

7. Determine the equation for the pattern: 7, 5, 3, ...

x	y
1	7
2	5
3	3

$\therefore y = -2x + 9$



8. What quadrant is the point  $(-3, 7)$  found?

9. Given the  $\triangle RST$ , if  $\angle R = 35^\circ$ , what are the other angles in the triangle?

\* only 1 angle is given!  $\rightarrow$  not enough info.  
 Don't assume it is a right  $\triangle$ ! There are lots of different types.

10. If the number  $R$ , is a perfect square, what would be the values for  $a$  and  $b$ ?

$R = 2 \cdot 2 \cdot 3 \cdot a \cdot (b)$   $\rightarrow$  this would have to be a perfect square because all other factors can be partnered up.

$\uparrow$   
 need another 3 so there is a pair