Midterm Flashback #2

1. Simplify: $6(x - 4)(2x + 3) - 5x$

$(6x - 24)(2x + 3) - 5x$

$12x^2 + 18x - 48x - 72 - 5x$

$12x^2 - 35x - 72$

2. Simplify: $(-3x^2)^4$ **Power of a Power**

$(-3x^2)(-3x^2)(-3x^2)(-3x^2)$ **mult. law**

$81x^8$

3. Simplify: $\dfrac{24x^7}{16x^3}$ $\dfrac{3x^4}{2}$

$\div 8$ $\div 8$

division law of exponents

4. Simplify: $(6x^{-7})(2x^3)$ $12x^{-4}$ → $\dfrac{12}{x^4}$

negative exponent law (final answer always positive exponents)

5. Write in scientific notation: 0.000 000 000 198

1.98×10^{-10}

6. Determine the missing side

SOH (CAH) TOA

$\cos 22 = x/49.8$

$49.8(\cos 22) = x$

$46.2 \text{ units} \doteq x$

49.8 m, O, x, 22°
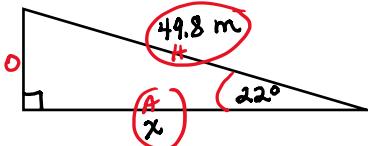
7. In the isosceles $\triangle ABC$, side a and b are equal. If side c is 50 cm and angle B is 41°, what is the area and perimeter of the triangle.

side a, side b, B, 41°, 41°, A, 50, side c

x, y, 41, 25
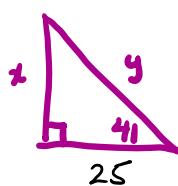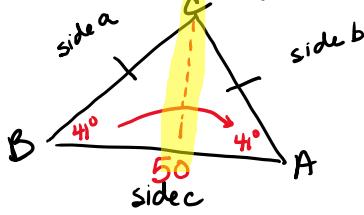
To find height

$\tan 41 = \dfrac{x}{25}$

$25(\tan 41) = x$

$21.7 \text{ units} \doteq x$

So Area:

$A = b \cdot h$

$= 50(21.7)$

$A \doteq 1085 \text{ sq units}$

To find hypotenuse:

$\cos 41 = \dfrac{25}{y}$

$y = \dfrac{25}{\cos 41}$ $\therefore y \doteq 33.1 \text{ units}$

So perimeter is

$P = a + b + c$

$= 33.1 + 33.1 + 50$

$P \doteq 116.2 \text{ units}$

Factoring *(handwritten, left margin)*

1
2
3

8. Factor completely:

P&S

$2x^2 - 20x \longrightarrow 2x(x-10)$

$x^2 + 7x - 18 \longrightarrow (x+9)(x-2)$

$x^2 + 10x + 24 \longrightarrow (x+4)(x+6)$

$x^2 - 8x - 48 \longrightarrow (x-12)(x+4)$

$100x^2 - 9 \longrightarrow (10x-3)(10x+3)$

$\dfrac{48}{}$
$1 \cdot 48$
$2 \cdot 24$
$3 \cdot 16$
$4 \cdot 12$
$6 \cdot 8$

$\dfrac{18}{}$
$1 \cdot 18$
$2 \cdot 9$
$3 \cdot 6$

$\dfrac{24}{}$
$1 \cdot 24$
$2 \cdot 12$
$3 \cdot 8$
$4 \cdot 6$

9. Write an expression that has a <u>degree of 4</u>, a <u>coefficient of 12</u>, is a <u>binomial</u> and has a <u>constant of -3</u>.

$$12\underline{x}^4 - \underline{3}$$

10. Determine the LCM of 20 and 32

$20 = 2 \cdot 2 \cdot 5 \longrightarrow 2^2 \cdot 5^1$

$32 = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \longrightarrow 2^5 \cdot 5$

$$LCM = 2^5 \cdot 5$$
$$= 32 \cdot 5$$
$$LCM = 160$$