

# QUARTER EXAM 3

## CHAPTERS 4 & 5

EXPONENT RULES - SIMPLIFY BIG, UGLY MONOMIALS

SCIENTIFIC NOTATION - EXPECT WORD PROBLEMS

POLYNOMIAL OPERATIONS -  $+$   $-$   $\times$   $\div$

PLD: 5<sup>th</sup> deg.

FACTORING

PRIME FACTORIZATIONS

FACTOR MONOMIALS, POLYNOMIALS

FACTOR COMPLETELY

DIFFERENCE OF SQUARES

DIFFERENCE OF CUBES

PERFECT SQUARE TRINOMIALS

SUM OF CUBES

DIFFERENCE OF FOURTH POWERS

BY GROUPING

AC METHOD

SOLVE QUADRATIC EQUATIONS

PYTHAGOREAN THEOREM - WORD PROBLEMS

$$\frac{-10b^5c^9}{2b^5c^3} = -5c^6$$

$$(b^5)^6 = b^{30}$$

$$(-2x^3y^2)^3 = -8x^9y^6$$

$$\left(\frac{a}{3b^{-3}}\right)^{-2} = \left(\frac{ab^3}{3}\right)^{-2}$$

$$\frac{a^{-8}}{a^{-12}} = \frac{a^{12}}{a^8} = a^4$$

$$\frac{9}{a^2b^6}$$

$$8.36 \times 10^6 = \underbrace{8\,360\,000}_{6 \text{ PLACES}}$$

$$5.7 \times 10^{-4} = \underbrace{0.00057}_{4 \text{ PLACES}}$$

$$\frac{(2 \times 10^{-9})(3 \times 10^7)}{5(6 \times 10^{-4})} = \frac{\cancel{2}^3}{5 \cdot 6} \times 10^{-9+7+4} = \frac{0.2 \times 10^2}{20}$$

# + - X ÷ POLYNOMIALS

FOR ADDING, JUST COLLECT LIKE TERMS.

FOR SUBTRACTING, SUBTRACT LIKE TERMS.

$$(x+2)(x^2-2x+4)$$

MULTIPLY EACH TERM IN THE  
FIRST BY EACH TERM IN THE  
SECOND

$$x^3 - \cancel{2x^2} + \cancel{4x} + \cancel{2x^2} - \cancel{4x} + 8$$

$$x^3 + 8$$

$$(9y^3 + 2y) \div (3y + 2)$$

$$3y^2 - 2y + 2 \quad R-4$$

$$3y+2 \overline{) 9y^3 + 0y^2 + 2y + 0}$$

$$\underline{-9y^3 - 6y^2} \quad \downarrow$$

$$0 - 6y^2 + 2y$$

$$\underline{+6y^2 + 4y} \quad \downarrow$$

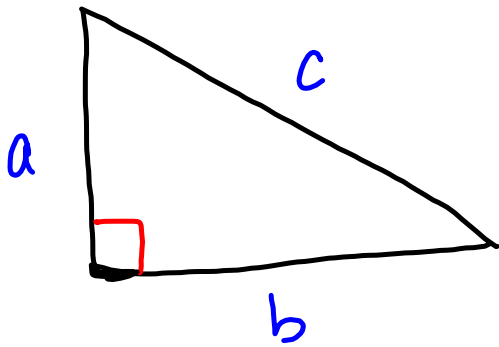
$$6y + 0$$

$$\underline{-6y - 4}$$

$$-4$$

# PYTHAGOREAN THEOREM

$$a^2 + b^2 = c^2$$

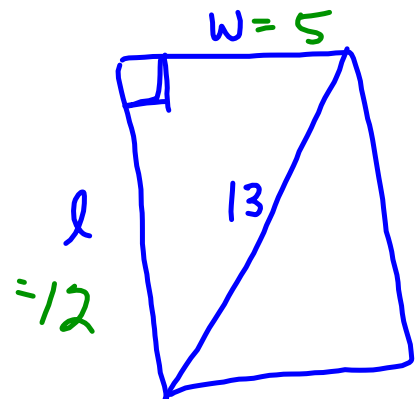


RECT.

$$5^2 + 12^2 = 13^2$$

$$25 + 144 = 169 \checkmark$$

$$P = 34 \quad \text{diag} = 13$$



$$P = 2l + 2w = 34$$

$$w^2 + l^2 = 13^2$$

$$w^2 + (17-w)^2 = 169$$

$$w^2 + 289 - 34w + w^2 = 169$$

$$2w^2 - 34w + 289 = 169$$

$$\underline{-169} \quad \underline{-169}$$

$$2w^2 - 34w + 120 = 0$$

$$\frac{2(w^2 - 17w + 60)}{2} = \frac{0}{2}$$

$$(w-5)(w-12) = 0$$

$$w-5=0$$

$$w=5$$

$$w-12=0$$

$$w=12$$

$$\frac{2l + 2w = 34}{2}$$

$$l + w = 17$$

$$l = 17 - w$$

60

-1 -60

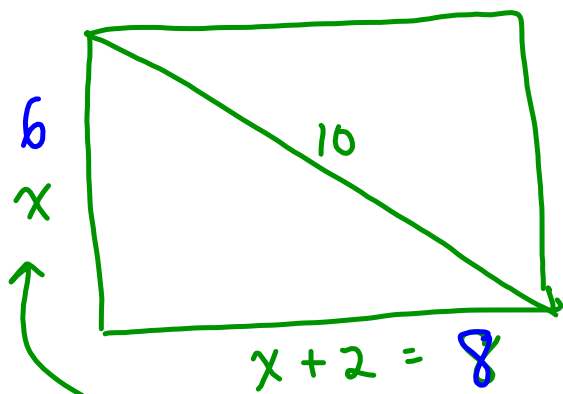
-2 -30

-3 -20

-4 -15

-5 -12

-6 -10



-48	
-1	48
-2	24
-3	16
-4	12
-6	8

$$a^2 + b^2 = c^2$$

$$x^2 + (x+2)^2 = 10^2$$

$$x^2 + x^2 + 4x + 4 = 100$$

$$\frac{2x^2 + 4x - 96}{2} = \frac{0}{2}$$

$$x^2 + 2x - 48 = 0$$

$$(x-6)(x+8) = 0$$

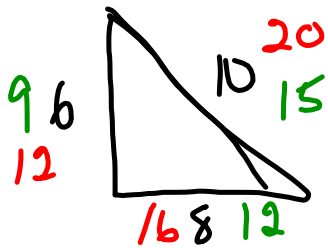
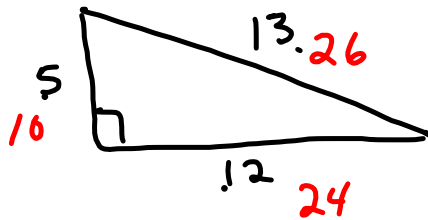
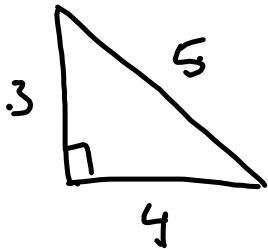
$$x-6=0 \quad x+8=0$$

$$x=6$$

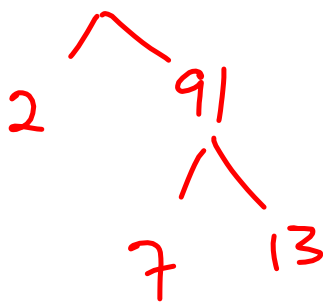
~~$$x=-8$$~~



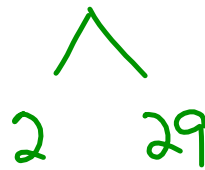
# PYTHAGOREAN TRIPLES



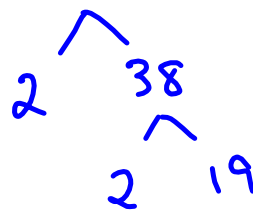
$$142 = 2 \cdot 7 \cdot 13$$



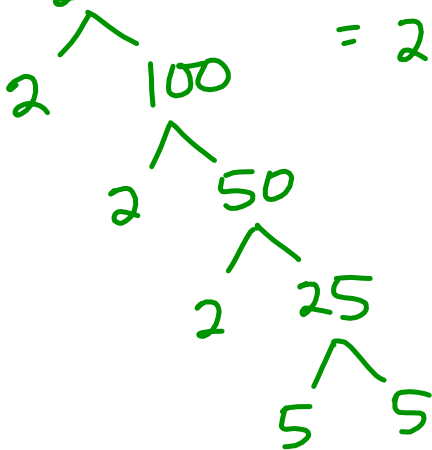
$$58 = 2 \cdot 29$$



$$76 = 2 \cdot 2 \cdot 19$$



$$200 = 2 \cdot 2 \cdot 2 \cdot 5 \cdot 5 = 2^3 \cdot 5^2$$



$$8x, 12x^2$$

$$\begin{array}{l} 8x = 2 \cdot 2 \cdot 2 \cdot x \\ 12x^2 = 2 \cdot 2 \cdot 3 \cdot x \cdot x \end{array} \quad \text{GCF} = 4x$$

$$6x^2y^2 - 9x^5y = 3x^2y(2y - 3x^3)$$

$$a^2 - b^2 = (a+b)(a-b)$$

$$a^2 + 2ab + b^2 = (a+b)^2$$

$$a^2 - 2ab + b^2 = (a-b)^2$$

$$a^3 + b^3 = (a+b)(a^2 - ab + b^2)$$

$$a^3 - b^3 = (a-b)(a^2 + ab + b^2)$$

$$a^4 - b^4 = (a^2 + b^2)(a+b)(a-b)$$