

S.1 & S.2 Quiz IS the homework
if you didn't already finish.
If you didn't, you're shootin' for a 7.

S.S.3

Monomial x^5y^6 is degree 11.

Polynomial $x^4 - 3x^3 + 4x - 5$ is degree 4

Trinomial $x^4y^3 - 4x^3y^2 + 21xy$ is degree 7.

Evaluation

$$P(x) = x^2 + x + 1 = \text{"P of x"}$$

$$P(w) = w^2 + w + 1 = \text{".. .. w"}$$

$$P(3) = 3^2 + 3 + 1 = \boxed{13 = P(3)}$$

$$\left(\frac{1}{3}\right)^2 = \frac{1^2}{3^2} = \frac{1}{9}$$

$$P\left(\frac{1}{3}\right) = \left(\frac{1}{3}\right)^2 + \frac{1}{3} + 1$$

$$= \frac{1}{9} + \frac{1}{3} \cdot \frac{3}{3} + \frac{1}{1} \cdot \frac{9}{9}$$

$$= \frac{1 + 3 + 9}{9} = \boxed{\frac{13}{9} = P\left(\frac{1}{3}\right)}$$

Sen9

Collecting Like Terms

$$\underline{3xy} - 7x + \underline{7xy} - 11$$

$$= 10xy - 7x - 11$$

Addition

$$= (\underline{x^2} + \underline{xy} - \underline{y^2}) + (\underline{2x^2} - \underline{4xy} + \underline{7y^2})$$

$$= x^2 + 2x^2 + xy - 4xy - y^2 + 7y^2$$

$$= \underline{3x^2} - \underline{3xy} + \underline{6y^2}$$

$$= (\underline{x^2} + \underline{xy} - \underline{y^2}) - (\underline{2x^2} - \underline{4xy} + \underline{7y^2})$$

$$= x^2 + xy - y^2 - 2x^2 + 4xy - 7y^2$$

$$= -x^2 + 5xy - 8y^2$$

Problem
Answer
Equation

$$\frac{1}{3}x^2 - \frac{1}{2}x^2y + y^3 + \frac{1}{6}x^2 - \frac{8}{3}x^2y^2 - \frac{2}{3}y^3$$

$$\frac{1}{3}x^2 + \frac{1}{6}x^2 - \frac{1}{2}x^2y + y^3 - \frac{2}{3}y^3 - \frac{8}{3}x^2y^2$$

$$(i) \quad \frac{x^2}{3} \cdot \frac{2}{2} + \frac{x^2}{6} - \frac{1}{2}x^2y + \frac{y^3}{1} \cdot \frac{3}{3} - \frac{2y^3}{3} - \frac{8}{3}x^2y^2$$

$$\frac{2x^2 + x^2}{6} - \frac{1}{2}x^2y + \frac{3y^3 - 2y^3}{3} - \frac{8}{3}x^2y^2$$

$$\frac{3x^2}{6} - \frac{1}{2}x^2y + \frac{y^3}{3} - \frac{8}{3}x^2y^2$$

$$(ii) \quad \frac{1}{3}x^2 + \frac{1}{6}x^2 - \frac{1}{2}x^2y + y^3 - \frac{2}{3}y^3 - \frac{8}{3}x^2y^2$$

$$\left(\frac{1}{3} + \frac{1}{6}\right)x^2 - \frac{1}{2}x^2y + \left(1 - \frac{2}{3}\right)y^3 - \frac{8}{3}x^2y^2$$

$$\frac{1}{2}x^2 - \frac{1}{2}x^2y + \frac{1}{3}y^3 - \frac{8}{3}x^2y^2$$

Factoring out GCF

$$3x + 6$$

$$\begin{array}{r} 2 \overline{)6} \\ 3 \end{array}$$

$$= 3x + 3 \cdot 2$$

$$= 3(x + 2)$$

$$3 \left(\frac{3x}{3} + \frac{3 \cdot 2}{3} \right)$$

$$42x - 54$$

$$= 3(x + 2)$$

$$= 6(7x - 9)$$

$$\begin{array}{r} 2 \overline{)42} \\ 3 \overline{)21} \\ 7 \end{array}$$

$$\begin{array}{r} 2 \overline{)54} \\ 3 \overline{)27} \\ 3 \overline{)9} \\ 3 \end{array}$$

$$6 \left(\frac{42x}{6} - \frac{54}{6} \right) = 6(7x - 9)$$

$$(2x + 3)(x - 7) = 2x^2 - 11x - 21$$

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

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

$$(x+4) \left(\frac{2x(x+4)}{(x+4)} - \frac{7(x+4)}{(x+4)} \right) = (x+4)(2x-7)$$

$$2x^2 + x - 28$$

$$= 2x^2 - 7x + 8x - 28$$

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

$$\rightarrow = (2x-7)(x+4)$$

For 5.6

$$4xy^1(x^2y^2 + x^2y - 3)$$

$$= 4x^2y^3 + 4x^3y^2 - 12xy$$

$$(y+5)(3y-2) = 3y^2 - 2y + 15y - 10$$

$$(y+5)(y^2 - 3y + 7)$$

$$= \frac{y^3 - 3y^2 + 7y}{5y^2 - 15y + 35}$$

$$y^3 + 2y^2 = 8y + 35$$

Apply Distributive Law.

$$(x-3)(x+3) =$$

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

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

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

Special Products to MEMORIZE

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

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

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

we started, today

$$\begin{aligned}
 & (y+5)(y^2-3y+7)(y+15) \\
 &= (y^3+2y^2-8y+35)(y+15) \\
 &= (y+15)(y^3+2y^2-8y+35) \\
 &= y^4+2y^3-8y^2+35y \\
 &\quad 15y^3+30y^2-120y+525 \\
 &\hline
 &= y^4+17y^3+22y^2-85y+525
 \end{aligned}$$

$$\begin{array}{r}
 2 \quad 35 \\
 \quad 15 \\
 \hline
 175 \\
 \frac{350}{5} \\
 \hline
 525
 \end{array}$$

$$(x-4)(x+4) = x^2 - 16$$

$$(x-4)(x-4) = x^2 - 8x + 16$$

$$(x+4)(x+4) = x^2 + 8x + 16$$

$$(x-4)(x+4) = x^2 + 4x - 4x - 16$$
$$= x^2 - 16$$

$$(x-4)^2 = (x-4)(x-4) = x^2 - 4x - 4x + 16$$
$$= x^2 - 8x + 16$$

$$\text{GCFs : } a^8, a^5, a^3 \quad a^3$$

$$\text{LCM : } a^8$$

$$10x^3yz^3, 20x^2z^5, 45xz^3$$

$5xz^3$ is GCF

Factor out the GCF:

$$10x^3yz^3 + 20x^2z^5 - 45xz^3$$

$$5xz^3 [2x^2y + 4xz^2 - 9]$$

$$= 5xz^3 \left[\frac{10x^3yz^3}{5xz^3} + \frac{20x^2z^5}{5xz^3} - \frac{45xz^3}{5xz^3} \right]$$

5.3, 5.4 Friday Due

5.5, 5.6 Discussion on Friday.