Quiz 5.0

1 (3 points) Simplify the expression. All exponents should be positive integers.

$$\frac{(6a^3b^{-2})^{-1}}{(2a^{-2}b)^{-2}}\left(\frac{3ab^3}{2a^2b^{-3}}\right)^2$$

2. (2 points) Perform the indicated operation. Express your answer in scientific notation.

$$\frac{(4\times10^3)(6\times10^7)}{3\times10^4}$$

Sections 5.1 Adding and subtracting polynomials

State whether each expression is a monomial. If so state the degree and coefficient of each monomial.

$8x^5 + 3x^2$ $5x^{-2}$ Not Polynomial

$8x^0 = 8$ $8x$

$3x^5y^2$ $4ab^{\frac{1}{2}}$ Not

7

You try

12 $x^{\frac{1}{3}}$

$-2m^3n$ $-xy$

State whether each expression is a polynomial. If so state the degree and coefficient of each polynomial.

$-3x^3+7x^2-x+5$

$-5z^{-1}+3$

$\frac{x-1}{x+1}$ $(x-1)(x+1)^{-1}$

You try

$$\frac{3x^2 - 9x + 27}{3}$$

$$5p^3q - 8pq^2 + pq$$

Simplify

$$(2x^2 - 3x + 1) + (4x^2 + 5x - 3)$$

$6x^2 + 2x - 2$

$2(3x^2 + x - 1)$

You try

$$(5w^4 - 3w^3 + w - 8) + (-2w^4 + w^3 - 7w^2 + 3)$$

$3w^4 - 2w^3 - 7w^2 + w - 5$

Simplify

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

$7z^3 - 4z^2 + z - 5$

You try

$(5x^3 - 6x^2 + x + 9) - (4x^2 + 10x^2 - 6x + 7)$

$P(x)$ $g(x)$

$(P - g)(x)$

Given

$P(x) = 2x^3 - 5x^2 + x - 3$

Find

P(3) and P(-1)

$P(3) = 2(3)^3 - 5(3)^2 + (3) - 3$

$= 54 - 45$

$= 9$

You try

Given

$g(x) = -2x^3 + 7x + 1$

Find

g(0) and g(2)

$g(0) = 1$

Given

$f(x) = 3x^2 - x + 1$

$g(x) = -x^2 + 5x - 6$

Find

$(f + g)(x)$ $(f - g)(x)$

$= 2x^2 + 4x - 5$

$(f+g)(2) = 2(2)^2 + 4(2) - 5$

$(f + g)(2)$ $(f - g)(-1)$

You try

Given

$$f(x) = 3x^2 - x + 1$$

$$g(x) = -x^2 + 5x - 6$$

Find

$(f+g)(x)$ $(f-g)(x)$

$(f+g)(1)$ $(f-g)(-2)$

$$P(x) = R(x) - C(x)$$

If a company sells calculators for \$12, its revinue function is $R(x) = 12x$. If the company's variable cost is \$7 per calculator and fixed costs are \$1200 per week, its cost is given by $C(x) = 7x + 1200$. Find the company's profit function.

$P(x) = (12x) - (7x + 1200)$

$P(x) = 5x - 1200$

$0 = 5x - 1200$

5.2 Multiplying Polynomials

Simplify

$(2a^3b)(-6a^2b^4)$

$-12a^5b^5$

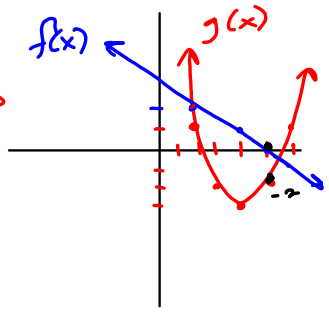
85. $f(x) =$

$(f+g)(2) = 3$

$f(2) + g(2)$

$f(3)(2) \neq$

$(f+g)(4) = -2$



$\rightarrow P(100)$

Simplify

$2(z-3)$

$2z-6$

You try

$-3(x+2)$ $(-7a^3b^2)(3ab^3)$

Simplify

$\frac{1}{2}xy^3\left(\frac{2}{3}xy^2+\frac{6}{5}y+\frac{3}{4}\right)$

$\frac{1}{3}x^2y^5+\frac{3}{5}xy^4+\frac{3}{8}xy^3$

You try

$2xy(3x^2-5xy+2y^2)$

$6x^3y-10x^2y^2+4xy^3$

Simplify

$(3x+4)(2x-5)$

$6x^2 - 15x + 8x - 20$

$6x^2 - 7x - 20$

You try

$(x+4)(x+1)$

$x^2 + 5x + 4$

Simplify

$(x^2+5x+2)(2x^2-x+3)$

$2x^4 - x^3 + 3x^2 + 10x^3 - 5x^2 + 15x$

$+4x^2 - 2x + 6$

$2x^4 + 9x^3 + 2x^2 + 13x + 6$

You try

$(z^2-3z+2)(2z^2+z+6)$

Simplify

$(x-7)(x+7)$

$x^2+7x-7x-49$

x^2-49

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

x^2-49

You try

$(5y-2)(5y+2)$

$(5y)^2$ ~~$5y^2$~~

$25y^2-4$

Simplify

$2\cdot w\cdot 5$

$(w+5)^2$

$w^2+10w+25$

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

You try

$2\cdot 6p\cdot 5$

$(6p+5)^2$

$36p^2+60p+25$

Given

$f(x)=2x+5$ $g(x)=x^2-7x+5$

Find

$f(4)\cdot g(4)$ $(f\cdot g)(x)=$

$13 \cdot -7 = -91$

$(f\cdot g)(4)$

You try

Given

$f(x)=5x-3$ $g(x)=x^2+3x+1$

Find

$(f\cdot g)(x)$ $(f\cdot g)(2)$

Given

$f(x)=x^2+5x$

Find

$f(x+3)$

$(x+3)^2+5(x+3)$

$x^2+6x+9+5x+15$

Given

$f(x)=x^2+5x$

Find

$f(x+h)-f(x)$

$\left[(x+h)^2+5(x+h)\right]-\left(x^2+5x\right)$

$x^2+2xh+h^2+5x+5h-x^2-5x$

$2xh+h^2+5h$