Grace

A. $(x^2-4x-21)+(2x^2+12x+20)$

Solution

$x^2-4x-1+2x^2+12x$

$3x^2-4x-1+12x$

$3x^2+8x-1$

B. $(x^2-4x-21)-(2x^2+12x+20)$

Solution

$x^2-4x-21-2x^2-12x-20$

$x^2-4x-41-2x^2-12x$

$-1x^2-4x-41-12x$

$-x^2-16x-41$

C. $(4x^2-14x-210)-(12x^2+362x+202)$

Solution

$4x^2-14x-210-12x^2-362x-202$

$4x^2-14x-412-12x^2-362x$

$-8x^2-14x-412-362$

$-8x^2-376x-412$

$-4(2x^2+94x+103)$

$-4(2x^2+94x+130$

2. $x(x+8x)$

Solution

$x(9x)$

$9xx$

$9x^2$

b. $x^2(x^3-x^2-8x)$

$x^5 - x^4 - 8x^3$

$5x - x^4 - 8x^3$

c. $(2x-3)(3x-4)$

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

$6x^2 - 8x - 9x + 12$

$6x^2 - 17x + 12$

~~$6x^2 - 17x + 12$~~

$6x^2 - x - 12$

d. $(x^2-2x-1)(x^2+5x+6)$

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

$-1(x^2+5x+6)$

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

$-1(x^2+5x-6)$

$x^4 + 5x^3 + 6x^2 - 2x^3 - 10x^2 - 12x$

$1(x^2-5x-6)$

$x^4 - 5x^3 - 6x^2 - 2x^3 - 10x^2$

$-12x - x^2 - 5x - 6$

$x^4 + 3x^3 + 6x^2 - 10x^2 - 12x$

$-x^2 - 5x - 6$

$x^4 + 3x^3 - 5x^2 - 12x - 5x - 6$

$x^4 - 3x^3 - 5x^2 - 17x - 6$

3. $3x^3 - x^2 - x - 2$ divided by $x+2$

Solution

$$\frac{3x^3 - x^2 + x - 2}{x+2} \div \frac{3x^3 - x^2 + x - 2}{x-2}$$

$$\frac{3x^3 - x^2 + x - 2}{x+2} : \frac{3x^3 - x^2 + x - 2}{x+2} = \frac{3x^2 + -7x^2 + 1x - 2}{x+2}$$

$$= \frac{3x^2 + -7x^2 + x - 2}{x+2}$$

$$-\frac{7x^2 + x - 2}{x+2} : \frac{-7x^2 - x - 2}{x+2} = \frac{7x + 15x - 2}{x+2}$$

$$= \frac{3x^2 - 7x + 15x - 2}{x+2}$$

$$\frac{15x - 2}{x+2} : \frac{15x - 2}{x+2} = 15 + \frac{-32}{x+2}$$

$$= 3x^2 - 7x + 15 + \frac{-32}{x+2}$$

$$= 3x^2 - 7x + 15 - \frac{32}{x+2}$$

5. $3x^3 - x^2 + x - 2$ divided by x^2

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

c. $5x^4-x^2+x-2$ divide x^2+2

Sol

$$\frac{5x^4-x^2x-2}{x^2+2} : \frac{5x^2-11+x+20}{x^2-2}$$

$$\frac{5x^4-x^2+x-2}{x^2+2} : \frac{5x^4x^2+x-2}{x^2+2} = \frac{5x^2+-11x^2+x-2}{x^2+2}$$

$$= \frac{5x^2+-11x^2+x-2}{x^2+2}$$

$$-\frac{11x^2+x-2}{x^2+2} \quad -\frac{11x^2+x-2}{x^2+2} = -\frac{11+x+20}{x^2+2}$$

$$= 5x^2-11+\frac{x+20}{x^2+20}$$

d. $3x^5-x^2+x-2$ divide by $3x^3-1$

Solution

$$\frac{3x5-x^2+x-2}{3x^2-1} : x^3+\frac{x}{3} \; -\frac{1}{3}+\frac{4x-7}{3(3x^2-1)}$$

$$\frac{3x5-x^2+x-2}{3x^2-1} : \frac{3x^5-x^2+x-2}{3x^2-1} = \frac{x^3-x^2+x-2}{3x^2-1}$$

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

$$\frac{x^3-x^2+x-2}{3x^2-1} : \frac{x^3-x^2+x-2}{3x^2-1} = \frac{x}{3}+\frac{-x^3-\frac{4x}{3}-2}{3x^2-1}$$

$$= x^3+\frac{x}{3}-\frac{1}{3}+\frac{4x-7}{3(3x^2-1)}$$