

This is yesterday's homework...skip this page if no questions.

3. Solve. Factor and use the quadratic formula where needed.

a) $2x^4 - 20x^3 - 48x^2 = 0$

b) $2x^4 - 50x^2 = 0$

c) $16x^3 - 12x^2 - 18x = 0$

$$2x(8x^2 - 6x - 9) = 0$$

$$2x(8x^2 + 6x - 12x - 9) = 0$$

$$2x(2x(4x+3) - 3(4x+3)) = 0$$

$$2x(4x+3)(2x-3) = 0$$

$$\therefore x = 0, -\frac{3}{4}, \frac{3}{2}$$

e) $-4x^3 + 10x^2 - 2x = 0$

$$\begin{aligned} 2x-3 &= 0 \\ 2x &= 3 \\ x &= \frac{3}{2} \end{aligned}$$

g) $0 = x^4 + x^2$

$$0 = x^2(x^2 + 1)$$

$$x^2 = 0$$

$$x = \pm\sqrt{0}$$

$$x = 0$$

$$x^2 + 1 = 0$$

$$x^2 = -1$$

$$x = \pm\sqrt{-1}$$

\therefore No Real Solution.

d) $x^3 - x^2 - 4x + 4 = 0$

$$1 \quad 72$$

$$2 \quad 36$$

$$3 \quad 24$$

$$4 \quad 18$$

$$5 \quad 12$$

$$6 \quad 6$$

f) $x^4 + 4x^3 + 5x^2 = 0$

$$x^2(x^2 + 4x + 5) = 0$$

$$a=1 \quad b=4 \quad c=5$$

$$x = \frac{-4 \pm \sqrt{4^2 - 4(1)(5)}}{2(1)}$$

$$= \frac{-4 \pm \sqrt{16 - 20}}{2} \quad \therefore b^2 - 4ac < 0$$

$\therefore x=0$ is the only root $\uparrow \therefore$ no Real roots

h) $x^3 - 14 = 0$

$$x^3 = 14$$

$$x = \sqrt[3]{14}$$

$$\approx 2.41$$

Today's Learning Goal(s):

By the end of the class, I will be able to:

- a) use the distributive property to expand and simplify polynomial expressions.

3.4.1: Expand and Simplify Polynomial Expressions

Ex. Find each product.

Date: Oct. 16 / 18

$$1) 2(5x^2 - 7x - 8)$$

$$= 10x^2 - 14x - 16$$

$$2) -8y(-6y^2 + 4y - 8)$$

$$= 48y^3 - 32y^2 + 64y$$

$$3) (9a + 2b)(6a - 3b)$$

$$= 54a^2 - 27ab + 12ab - 6b^2$$

$$= 54a^2 - 15ab - 6b^2$$

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

$$= -4x^3 + 8x^2 - 8x - 8x^2 + 16x - 16$$

$$= -4x^3 + 8x - 16$$

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

$$= 8x^4 + 10x^3 + 12x^2 - 12x^3 - 15x^2 - 18x - 20x^2 - 25x - 30$$

$$= 8x^4 - 2x^3 - 23x^2 - 43x - 30$$

$$6) (-x^2 + xy + 3y^2)(-2x^2 - 3xy - 2y^2)$$

$$= 2x^4 + 3x^3y + 2x^2y^2 - 2x^3y - 3x^2y^2 - 2xy^3 - 6x^2y^2 - 9xy^3 - 6y^4$$

$$= 2x^4 + x^3y - 7x^2y^2 - 11xy^3 - 6y^4$$

There is a Quiz on Tomorrow (on factoring)!

Today's Homework: 12 Questions from 3.4.2