BOARD NOTES

29 OCTOBER 2019

2A.7 (B) add, subtract, and multiply polynomials;
2A.7 (C) determine the quotient of a polynomial of degree three and of degree four when divided by a polynomial of degree one and of degree two;
2A.7 (D) determine the linear factors of a polynomial function of degree three and of degree four using algebraic methods;

We will be able to define a polynomial given a function.

WHAT WE NEED:

- Definition of polynomial

I WILL BE ABLE TO COMPLETE MY HOMEWORK GIVEN THE

- Function

Let n be a nonnegative integer and let $a_n, a_{n-1}, \ldots, a_2, a_1, a_0$ be real numbers, with $a_n \neq 0$. The function defined by

$$f(x) = a_n x^n + a_{n-1} x^{n-1} + \ldots + a_2 x^2 + a_1 x + a_0$$

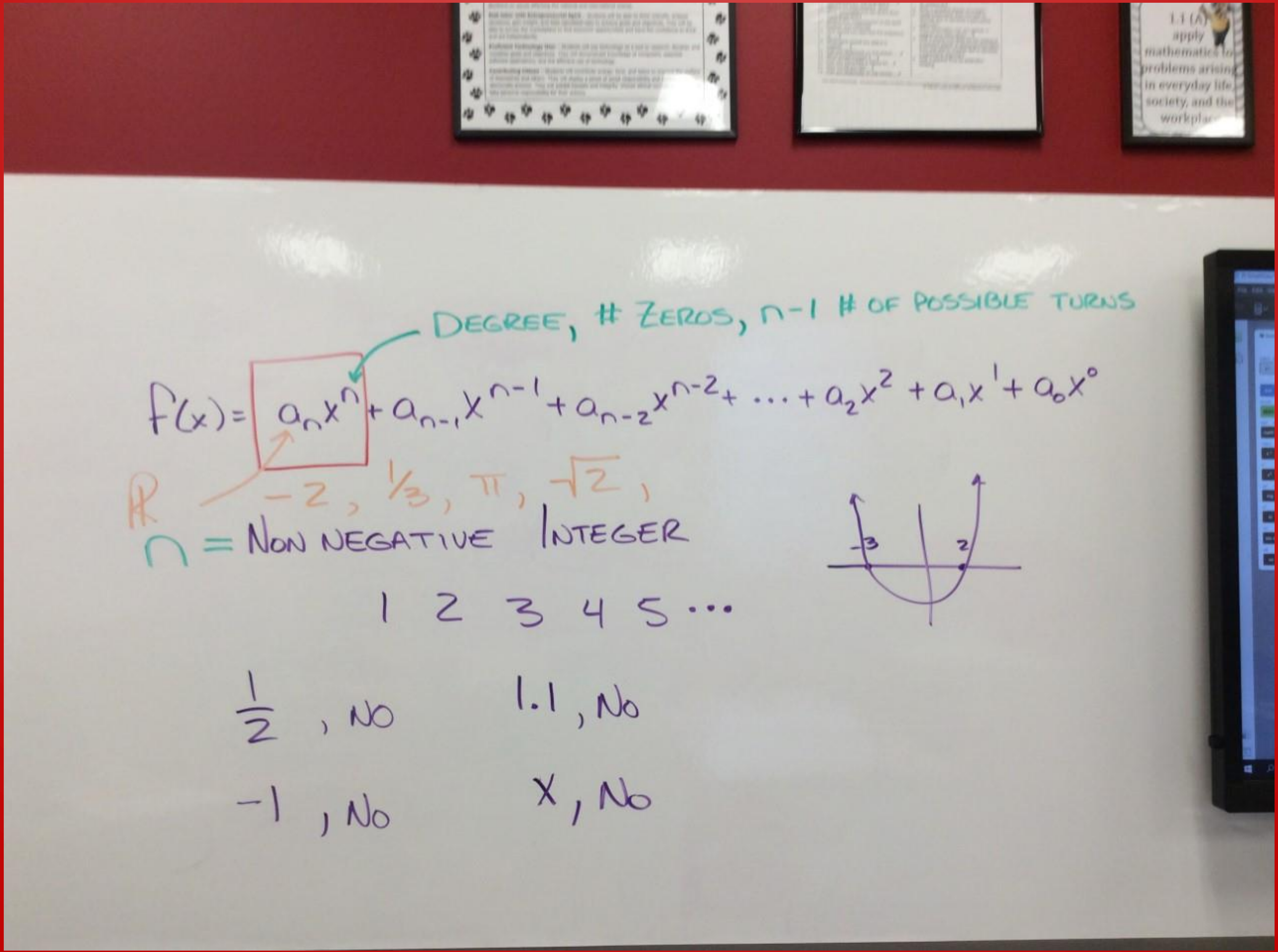
is called a polynomial function of degree n. The number a_n, the coefficient of the variable to the highest power, is called the leading coefficient.

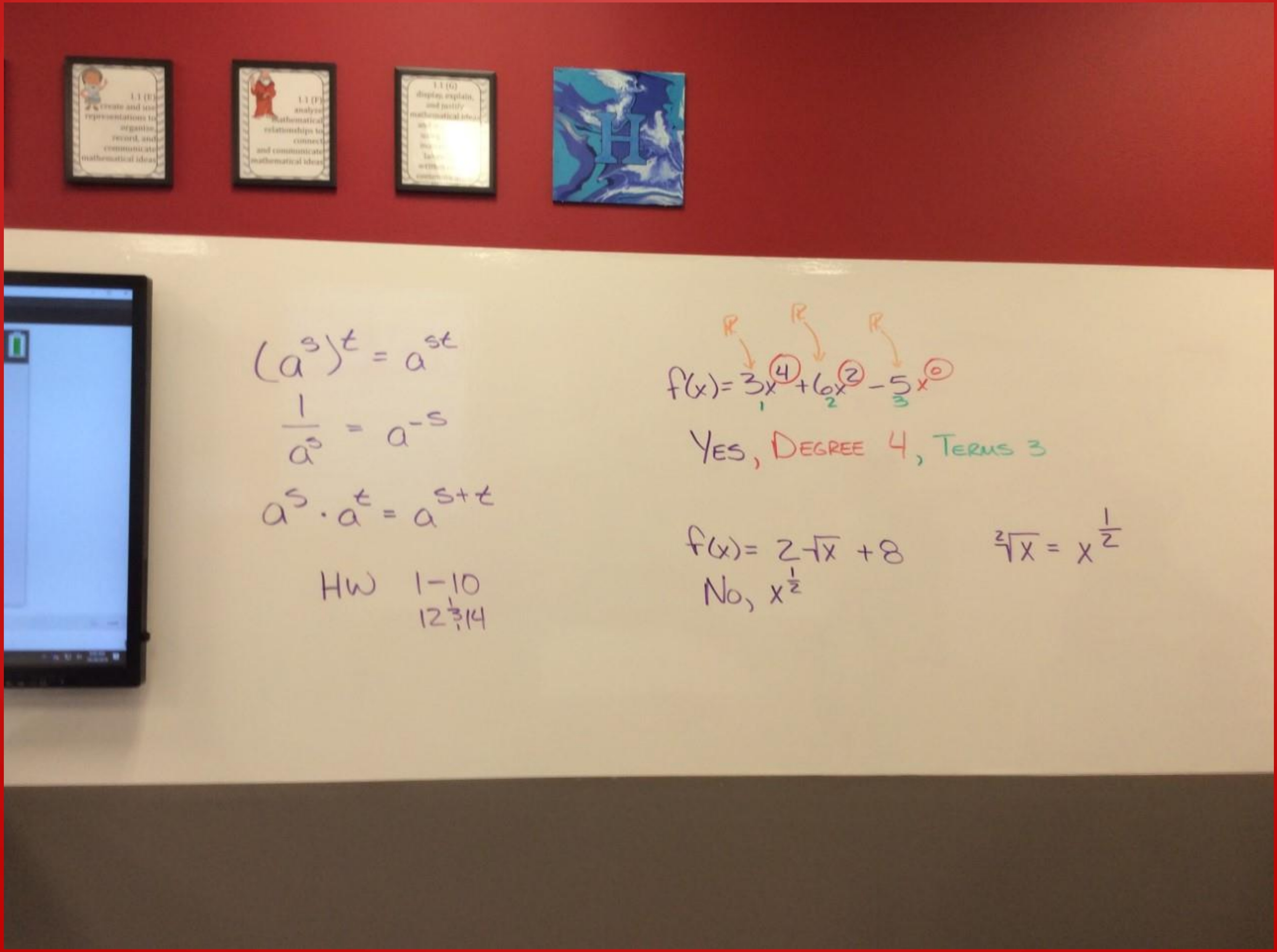
Laws of Exponents

If s, t, a, and b are real numbers with $a > 0$ and $b > 0$, then

$$a^s \cdot a^t = a^{s+t} \qquad \left(a^s\right)^t = a^{st} \qquad (ab)^s = a^s \cdot b^s$$

$$1^s = 1 \qquad a^{-s} = \frac{1}{a^s} = \left(\frac{1}{a}\right)^s \qquad a^0 = 1$$


DEGREE, # ZEROS, n-1 # OF POSSIBLE TURNS
$f(x) = \boxed{a_n x^n} + a_{n-1}x^{n-1} + a_{n-2}x^{n-2} + \dots + a_2x^2 + a_1x^1 + a_0x^0$
ℝ
-2, 1/3, π, √2,
n = NON NEGATIVE INTEGER
1 2 3 4 5 ...
1/2, NO
1.1, No
-1, No
X, No
-3
2


$(a^s)^t = a^{st}$
$\frac{1}{a^s} = a^{-s}$
$a^s \cdot a^t = a^{s+t}$
HW 1-10
12, 13, 14
R R R
$f(x) = 3x^4 + 6x^2 - 5x^0$
1 2 3
Yes, Degree 4, Terms 3
$f(x) = 2\sqrt{x} + 8$
No, $x^{\frac{1}{2}}$
$\sqrt[2]{x} = x^{\frac{1}{2}}$

3) $f(x) = 3x^{-4} + 6x^2$

No, x^{-4}

4) $f(x) = \frac{3}{x} - 5$

$= 3x^{-1} - 5$

No, x^{-1}

5) $f(x) = \frac{x}{3} - 5$

YES, 1, 2

6) $f(x) = \frac{3x^4 + 6x - 5}{x^2 - 4}$

No, x^{-2}

RATIONAL

7) $5x(x-3)^2 = f(x)$

$x \cdot x^2 = x^{1+2} = x^3$

YES, 3, 3

$(x-3)(x-3)$

3 TERMS

8) $f(x) = 5^x + 3$

NO, EXPONENTIAL

X IS THE POWER

FACTORED FORM

$f(x) = \boxed{(x-2)(x+3)}$

ZEROS -3, 2

$f(x) = x(x-4)^2$

3, ZEROS 0, 4