

- pp. 298-9 evens
- #28 deg = 2 #130 deg = 3
- #32 deg = 2 #34 deg = 3
- #38 pos; 3 #46 $7+7i$
- #48 $35x - 5y = -2$
- #50 $2x + 7y = 28$
- #52 $(x+10)(x-2)$

#48 - 50

standard form

$$ax + by = c$$

integer coefficients
no decimals,
no fractions.
just integers

$$48: y = 7x + 0.4$$

$$-7x + y = 0.4$$

$$-35x + 5y = 2 \checkmark$$

$\times 5$

another
answer:

$$x(-1)$$

$$35x - 5y = -2 \checkmark$$

To do:
multiply by
smallest int.
that will
make 0.4
into an
integer.

#146 $(3+4i) - (-4-3i)$

\downarrow
 \downarrow
 \downarrow
 \downarrow
 \downarrow

$+$

$+$

$3 + 4i + 4 + 3i$

$7 + 7i$

#37

UP-DOWN

- ODD DEGREE
- NEGATIVE LEADING COEFF.

(a) coeff. negative.

(b) min. degree?

3

Factored form (topic)

Q: How do you put a polynomial in factored form?

A. factor it

degree n : potentially n factors.

Ex. $x^3 - 2x^2 - 15x$ (function)

deg=3
3 factors? $x(x^2 - 2x - 15)$
 $x(x+3)(x-5)$ (equation)

Suppose: $x^3 - 2x^2 - 15x = 0$

$x(x+3)(x-5) = 0$

Solve: $x=0$ $x=-3$ $x=5$

$$\begin{array}{r} x+3=0 \\ -3 \quad -3 \\ \hline x=-3 \end{array}$$

IF $(x-b)$ is a linear factor of a polynomial,

THEN b is a root (solution) of the polynomial equation.

vocab: $x - b$
linear factor

vocab: root
 solution of the
 polyn. equation.

vocab: zero of function
 an x -value that makes
 the output of polynomial
 equal to zero.

vocab: x -intercept
 place where output
 of polyn. = 0

Suppose: $(x - 5)$ is a factor of $P(x)$

then: 5 is a zero of
 $P(x)$

$(x - (-7))$

Suppose: $(x + 7)$ is a factor of $P(x)$

then: -7 is a zero of $P(x)$

Example: zeroes $-2, 2, 3$

$$\begin{aligned} & (x+2)(x-2)(x-3) \\ = & (x+2)(x^2-5x+6) \\ = & x^3 - 5x^2 + 6x \\ & \quad + 2x^2 - 10x + 12 \\ = & x^3 - 3x^2 - 4x + 12 \\ = & P(x) \text{ with zeros } -2, 2, 3 \end{aligned}$$