

**2.10 Do Now Quiz - Find the zeros of a factored polynomial (A.APR.3)**

1. Write down the solutions to the following polynomial equation

$$x(x - 5)(x + 2) = 0$$

$$x = 0, 5, -2$$

2. Write down a polynomial function  $f(x)$  with roots  $x = 4, -3, 7$

$$(x - 4)(x + 3)(x - 7)$$

3. Given  $f(x) = x(x + 5)(x + 1)(x - 9)$ . Select the true statements.

(a)  $f(5) = 0$

(b)  $f$  has degree 3.

(c) One of the zeros of  $f$  is 9.

(d) An ordered pair satisfying the equation is  $(-1, 0)$

(e)  $f(0) = 0$

4. Write a recursive definition of the sequence  $a_1 = 5, a_2 = -15, a_3 = 45, \dots$

$$a_1 = 5$$

$$a_n = -3 a_{n-1}$$

**2.10b Do Now Quiz - Find the zeros of a factored polynomial (A.APR.3)**

1. Given the solutions to  $f(x) = 0$  are  $x = 0, 5, -2$ . Write down a possible polynomial function  $f$ .

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

2. Write down the zeros to the following polynomial:

$$f(x) = (x-4)^2(x+1)(x-8)$$

$$4, -1, 8$$

3. Given  $f(x) = x^2(x+1)(x+5)$ . Select the true statements.

- (a) The degree of the polynomial is odd.
- (b) The  $x$  intercepts of the function's graph are at 0, 1, and 5.
- (c) Regarding end behavior, as  $x$  increases without bound in either the positive or negative direction,  $y$  increases in the negative direction.
- ☒ (d) An ordered pair satisfying the equation is  $(-1, 0)$

4. Write a recursive definition of the arithmetic sequence  $a$ .

| $n$ | $a_n$ |
|-----|-------|
| 1   | -8    |
| 2   | -3    |
| 3   | 2     |

$$a_1 = -8$$

$$a_n = a_{n-1} + 5$$

### 2.11 Do Now Quiz - Add, subtract, and multiply polynomials (A.APR.1)

1. Evaluate the polynomial for  $x = 0$ :

$$f(x) = x^4 - 13x^2 - 23x + 17$$

$$f(0) = 17$$

2. Add  $(x^4 + 2x^3 - x^2 + 3x + 1) + (2x^4 - x^3 + 7x^2 + 2x + 6)$

$$= 3x^4 + x^3 + 6x^2 + 5x + 7$$

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

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

4. Multiply  $(x^2 + 3) \times (2x^3 - 5x^2 + 3x + 2)$  using the grid method.

|       | $2x^3$ | $-5x^2$  | $+3x$  | $+2$   |
|-------|--------|----------|--------|--------|
| $x^2$ | $2x^5$ | $-5x^4$  | $3x^3$ | $2x^2$ |
| $+3$  | $6x^3$ | $-15x^2$ | $9x$   | $+6$   |

$$= 2x^5 - 5x^4 + 9x^3 - 13x^2 + 9x + 6$$

5. Write a recursive definition for  $a_1 = 7$ ,  $a_2 = 1$ ,  $a_3 = -5$ ,  $a_4 = -11$ , ...

$$a_1 = 7$$

$$a_n = a_{n-1} - 6$$

**2.11 Do Now Quiz: Graph polynomials, identify zeros, end behavior F.IF.7c**

1. Given the function  $f(x) = (x - 2)^2(x + 7)(x - 8)$

(a) Write down the zeros of the function

$2, -7, 8$

(b) What is the degree of  $f(x)$ ?

$4$

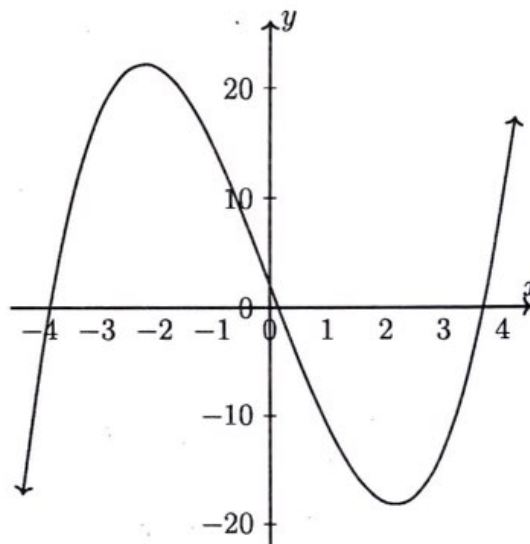
2. Write down the end behavior of the function shown at right  $g(x) = x^3 - 14x + 2$

$$x \rightarrow +\infty$$

$$y \rightarrow +\infty$$

$$x \rightarrow -\infty$$

$$y \rightarrow -\infty$$



3. Given  $h(x) = x^3 + 11x^2 + 32x + 28$  which is graphed below.

(a) Write down the factors of the function.

$$(x+7)(x+2)$$

(b) Which factor has a multiplicity of 2?

$$x+7$$

