Algebra 1 CC
Assignment #62
Introduction to Polynomials
*** Optional**

1. Which of the following is *not* a polynomial expression?

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

2. Write each of the following polynomial expressions in standard form.

   (a) $7x^2+4x^3+5+2x$ (b) $4-x-5x^2$ *(c) x^3+x-7x^2+2

   (d) $2x+1-3x^3+5x^2$ *(e) $4x^3-2x^2+6-8x$ *(f) $y^5+y^{10}-y^2+y^7$

3. Find each of the following sums and differences. Write your answer in simplest standard form.

   (a) $6x^2-2x+8+3x^2+7x-2$ (b) $x^3+4x^2-8x+3+x^3-x+1$

   (c) $\left(5x^2+3x-1\right)-\left(3x^2-6x+4\right)$ (d) $\left(2x^3-5x^2+8x-1\right)-\left(-4x^3+8x^2-3x-9\right)$

   *(e) $4x^2+6x-3-3x^2+2x+4$ *(f) $\left(4x^2+6x-3\right)-\left(3x^2+2x+4\right)$

4. Polynomial expressions act a lot like integers because the structure of polynomials is based on the structure of integers. Based on the statement below about integers, make a statement about polynomials.

   Statement About Integers: An integer added to an integer gives an integer.

   Statement About Polynomials:

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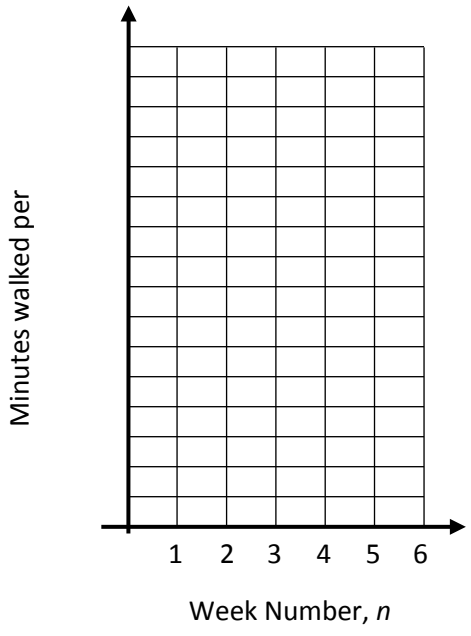
*R1. Maria plans to double the amount of time she spends walking per day each week. She starts, on week 1, walking 5 minutes per day. After 7 days, she then walks 10 minutes per day, etcetera.

(a) How many minutes per day will Maria be walking on Week #6? Show the calculation that gives your answer.

(b) Scale the *y*-axis appropriately and graph the first six terms of this sequence. List them all if you haven't already.

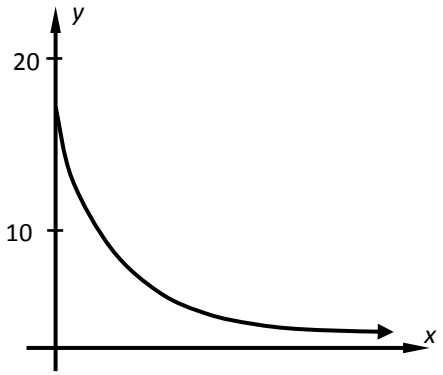
(c) According to this geometric progression, how many minutes per day would Maria be walking on Week #10? Why is this not a viable answer?



R2. Which of the following could be the equation of the exponential function shown graphed below? Explain your choice.

(1) $y = 15(1.25)^x$ (3) $y = 50(1.04)^x$

(2) $y = 18(0.75)^x$ (4) $y = 40(0.45)^x$



R3. For a concert, there were 206 more tickets sold at the door than were sold in advance. The tickets sold at the door cost $10 and the tickets sold in advance cost $6. The total amount of sales for both types of tickets was $6828. How many of *each* type of ticket was sold?

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1. (2)
2. (a) $4x^3 + 7x^2 + 2x + 5$

   (b) $-5x^2 - x + 4$

   (c) $x^3 - 7x^2 + x + 2$

   (d) $-3x^3 + 5x^2 + 2x + 1$

   (e) $4x^3 - 2x^2 - 8x + 6$

   (f) $y^{10} + y^7 + y^5 - y^2$
3. (a) $9x^2 + 5x + 6$

   (b) $2x^3 + 4x^2 - 9x + 4$

   (c) $2x^2 + 9x - 5$

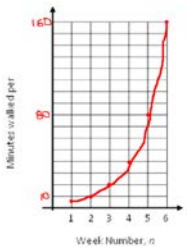
   (d) $6x^3 - 13x^2 + 11x + 8$

   (e) $x^2 + 8x + 1$

   (f) $x^2 + 4x - 7$
4. A polynomial added to a polynomial gives a polynomial.

R1. (a) $M = 5(2)^n$, 160 minutes

(b)



(c) 2560 minutes

This is over 42 hours which is more than a full day of walking.

R2. (2)

R3. Door = 504

Advanced = 298