Unit #1 – Polynomials & Equations
Progress Check

MPM1D1

The purpose of the progress check is to diagnose areas that you need more practice with before the test.

1. Review your notes before trying the questions in this package.
2. Answer the questions on this handout. Treat it like a test. DO NOT look at the answers until you have finished all of the questions.
3. Use the answers provided to check and see how you did.
4. Use the additional review questions provided in the textbook (see unit outline) to practice more questions like the ones you had trouble with in this package.
5. Although this progress check contains a wide selection of questions from this unit, it does not cover ALL of the possible questions from the unit.
6. Students who miss multiple tests may face a penalty of 5% per day.

C1. Use the expression below to identify the following:

$$\mathbf{6x^2 + 3x - 12}$$

a) Underline one term.

b) Circle one variable.

c) Draw a box around a coefficient.

d) Draw a triangle around a constant.

e) State the degree of the polynomial.

f) Classify the type of polynomial based on the number of terms.

K2. Simplify the following expressions by collecting like terms.

a) $3a + 3b - 4c + 9 - a + 4b + 1 + 10c$

b) $2x^2 - 4 + x + 5x^2 + 7 - 5x$

K3. Expand and simplify the following expressions.

a) $4(3x - 2) - 10(x + 1)$

b) $4 + (x + 2) + 5 - (x - 3) - 9x$

K4. Solve the following equations.

a) $5x + 3 = 13$

b) $5 - 4x = 17$

c) $2x^2 - 7 = 193$

d) $15y - 6 = 9 + 10y$

e) $4(m + 3) + 2(m - 3) = 3(m - 2)$

f) $7(2x^2 + 3x) - (21x - 5) - 3(4x^2 + 7) = 2$

g) $\frac{1}{2} + \frac{x - 5}{3} = \frac{x + 4}{4}$

h) $\frac{1}{4}(3y - 2) = \frac{2}{3}(y + 1)$

C5. Suzanne solved two different equations, shown below.

Question #1

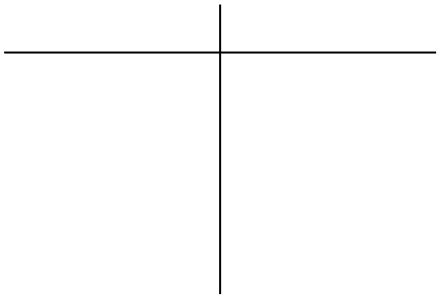
$$5x + 4 = 12 - 3x$$
$$2x + 4 = 12$$
$$2x = 8$$
$$x = 4$$

Question #2

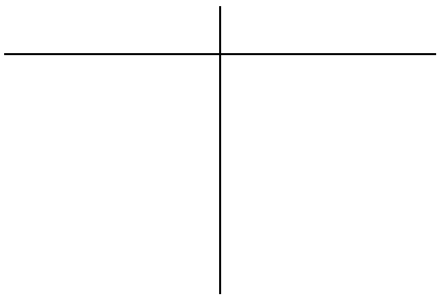
$$\frac{x}{3} + 6 = 9$$
$$\frac{x}{3} = 3$$
$$x = 9$$

a) Check her answers to see if she answered the questions correctly.

Question #1



Question #2



b) If either of her answers is incorrect, look at her work and circle where she made her error. Explain, **in words**, what she did incorrectly.

C6. Solve the following equation. Describe, **in words**, each step you used to solve the equation.

$7b + 2b = -5 - 4$

P7. Determine the value of **A** in the equation $5x + 7 + 2x + \mathbf{A} = 100$, such that the solution to the equation is $x = 11$.

A8. The cost of renting a bike at Centre Island in Toronto is represented by the equation **C = 2n + 10**, where C is the cost of renting a bike, and n is the number of hours of bike rental.

a) How much does it cost to rent a bike for **2 hours**?

b) How long did you rent the bike for if it costs $**30.00**?

c) Write a simplified equation to show the cost of renting <u>two</u> bikes.

d) You and a friend want to spend the day at Centre Island. Together, you have a total of $50 to spend for the day. If you each have to pay $8 for the ferry ride over to the island, how long can you afford to rent bikes for?

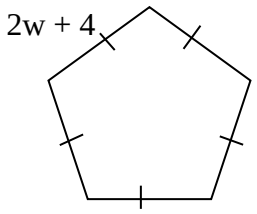
A9. The total cost (***T***) for a group to go to an amusement park and buy an all-inclusive ticket for all the rides is given by **T = 25A + 15C + 10(A + C)**, where ***A*** is the number of adults, and ***C*** is the number of children.

a) What is the cost for a family with one adult and three children to go to the park?

b) If a family with two adults goes to the park and pays $195, how many children are there?

c) A teacher plans to take her class of 25 students to the amusement park on a field trip. She is hoping to get some parent volunteers to come with them on the trip. If the bus they are taking seats 32 people, what is the maximum and minimum cost of the trip?

P10. The perimeter of the garden in the diagram is 170 m. Determine the value of **w** and the length of each side.



ANSWERS

1a] *$6x^2$ or 3x or -12* ***1b]*** *x* ***1c]*** *6 or 3* ***1d]*** *-12* ***1e]*** *2* ***1f]*** *Trinomial*
2a] *2a + 7b + 6c + 10* ***2b]*** *$7x^2 – 4x + 3$*
3a] *2x – 18* ***3b]*** *14 – 9x*
4a] *x = 2* ***4b]*** *x = 3* ***4c]*** *x = 10* ***4d]*** *y = 3* ***4e]*** *m = -4* ***4f]*** *x = 3* ***4g]*** *x = 26* ***4h]*** *y = 14*
5a] *Q#1 Wrong (24 ≠ 0), Q#2 Right (9 = 9)* ***5b]*** *Q#1, she subtracted 3x instead of adding*
6] *b = -1 (Collected like terms on each side, divided both sides by 9)*
7a] *16*
8a] *$14.00* ***8b]*** *10 hours* ***8c]*** *C = 4n + 20* ***8d]*** *3.5 hours*
9a] *$110.00* ***9b]*** *5 children* ***9c]*** *$660 – $870*
10] *34 m (w = 15)*