Worksheet #1: *Communicate with Algebra*

1. Identify the coefficient and the variable part of each term.

a) $2y$ **b)** $-3x$ **c)** mn **d)** $\frac{1}{2}x^2$ **e)** $-w^2$ **f)** $-0.4gh^3$

2. $7x^2 + 3xy + 4y^2$ is a:

A. monomial **B.** binomial **C.** trinomial **D.** term

3. Classify each polynomial by the number of terms.

a) $-2x$ **b)** $6y^2 + 2y - 1$ **c)** $a - \frac{1}{2}b$

d) $3u^2 - uv + 2v^2$ **e)** $3k^3 - \frac{1}{2}k$ **f)** $m + 0.2n - 0.3 + mn$

4. The degree of $4u - 5u^2 + 9$ is:

A. 1 **B.** 2 **C.** 3 **D.** 0

5. State the degree of each term.

a) $5x^2$ **b)** $-6y$ **c)** -3 **d)** u^2v^4 **e)** $\frac{1}{3}x^2y^3$ **f)** $0.2a^2b$

6. State the degree of each polynomial.

a) $3x - 4$ **b)** $y^2 + 3y - 1$ **c)** $m - 2m^3$

d) $a^3b^2 - 8a^2b^5$ **e)** $2x^2y^4 - \frac{2}{5}xy^3$

7. In a TV trivia show, a contestant receives 500 points for a correct answer and loses 200 points for an incorrect answer. Let *c* represent the number of correct answers and *i* represent the number of incorrect answers. Which expression describes a contestant's total points?

A. $500c + 200i$ **B.** $500c - 200i$ **C.** $500i + 200c$ **D.** $500i - 200c$

8. A hockey team earns 2 points for a win and 1 point for a tie. Let w represent the number of wins and t represent the number of ties. Which expression can be used to describe the team's total points? Is there more than one correct answer?

A. $2w + 1$ **B.** $w + t$ **C.** $2w + 1t$ **D.** $2w + t$

9. Substitute the given values and evaluate each expression.

a) $3x + 5$ $x = 2$

b) $4y + 4$ $y = -2$

c) $a^2 + 2b - 7$ $a = 4, b = 1$

d) $2m^2 - 3n + 8$ $m = -2, n = 5$

10. Shaylee has a summer job at a fitness club. She earns a $5 bonus for each student membership and a $7 bonus for each adult membership she sells.

a) Define your variables and write a polynomial expression that describes Shaylee's total bonus.

b) How much with Shaylee's bonus be if she sells 12 student memberships and 10 adult memberships?

11. An arena charges $25 for gold seats, $18 for red seats and $15 for blue seats.

a) Define your variables and write an expression that describes the total earnings from seat sales.

b) How much with the arena earn if it sells 100 gold seats, 200 blue seats and 250 red seats?

12. On a multiple choice test, you earn 2 points for each correct answer and lose one point for each incorrect answer.

a) Define your variables and write an expression for a student's total score.

b) Nolan answered 15 questions correctly and 3 incorrectly. Find Nolan's total score.

13. Aiden is training for a triathlon, where athletes swim, cycle, and run. During his training program, he has found that he can swim at 1.2 km/h, cycle at 25 km/h and run at 10 km/h. To estimate his time for an upcoming race, Aiden rearranges the formula *distance* = *speed* × *time* to find that:

$$\text{time} = \frac{\text{distance}}{\text{speed}}$$

a) Choose a variable to represent the distance travelled for each part of the race. For example, choose *s* for the swim.

b) Copy and complete the table. The first row is done for you.

Part of the Race	Speed (km/h)	Distance (km)	Time (h)
swim	1.2	s	$\frac{s}{1.2}$
cycle			
run			

c) Write a trinomial to model Aiden's total time.

d) A triathlon is advertised in Kingston. Participants have to swim 1.5 km, cycle 40 km, and run 10 km. Using your expression from part c), calculate how long it will take Aiden to finish the race.

e) Is your answer a reasonable estimate of Aiden's triathlon time? Explain.

Answers

1. A. coefficient: 2, variable: y, **B**. coefficient: -3, variable: x, **C.** coefficient: 1, variable: mn, **D.** coefficient: $\frac{1}{2}$, variable: x^2, **E.** coefficient: -1, variable: w^2, **F.** coefficient: -0.4, variable: gh^3. **2. C. 3. A**. monomial, **B.** trinomial, **C**. binomial, **D.** trinomial, **E.** binomial, **F.** four-term polynomial. **4. B. 5. A**. 2, **B.** 1, **C**. 0, **D.** 6, **E.** 5, **F.** 3. **6. A**. 1, **B**. 2, **C.** 3, **D.** 7, **E.** 6. **7. B**. **8. C & D.** Both are correct. **9. A.** 11, **B**. -4, **C.** 11, **D.** 1. **10. A**. $5s+7a$ **B.** $130. **11. A**. $25g + 18r + 15b$, **B.** $10 000

12. A. $2c - w$, **B**. 27. **13. C.** $\frac{s}{1.2} + \frac{c}{25} + \frac{r}{10}$, **D.** 3.85 h, **E.** This is a reasonable time for a triathlon considering the length.