

Practice Test 3 – Polynomials

K: _____	T: _____	A: _____	C: _____
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PART A: Multiple Choice Questions**Instructions:** Circle the English letter of the best answer.**Circle one and ONLY one answer for each question.**

What if you don't have any idea what to do? DON'T give up. You have 25% chances of getting it right!! Look at the given choices and use your logical sense. You can do this!!

- Eliminate unreasonable choices
- Substitute answers into questions, and check each choice
- Last resort, just pick one answer. You will not be penalized for choosing the wrong answer!

Knowledge:

1. If $a = 2$ and $b = 3$, which expression, below has the largest value?

- (a) ab^2 (b) a^2b (c) $a^2 + b^2$ (d) $a^2 - b^2$

2. Simplify $3x(2x + 3) - 5x$.

- (a) $6x^2 - 5x + 3$ (b) $6x^2 - 6x$ (c) $15x^2 - 5x$ (d) $6x^2 + 4x$

3. What is the simplified form of the expression $2x - 3 - 5x + 1$?

- (a) $3x - 2$ (b) $3x + 2$ (c) $-3x - 2$ (d) $-3x + 2$

4. The algebraic expression $-4x^3 + 3x^2 - 2x$ can be classified as a:

- (a) Term (b) Trinomial (c) Binomial (d) Monomial

5. What is the value of the expression $\left(\frac{x}{3}\right)^2$ when $x = 18$?

- (a) 2 (b) 12 (c) 36 (d) 108

6. The cost, C , in dollars of producing n yearbooks is represented by the equation $C = 1000 + 5n$. How much would it cost to produce 75 yearbooks?

- (a) \$375 (b) \$625 (c) \$1000 (d) \$1375

Part B: Full Solution Questions

Show all steps for full mark. Provide answer statements in complete sentences where applicable.

Knowledge:

7. Classify each algebraic expression as monomial, binomial, trinomial or polynomial. [K: 4]

(a) $x^2 - 8x + 5$	<input type="checkbox"/> Monomial	<input type="checkbox"/> Binomial	<input type="checkbox"/> Trinomial	<input type="checkbox"/> _____ Polynomial
(b) $2y$	<input type="checkbox"/> Monomial	<input type="checkbox"/> Binomial	<input type="checkbox"/> Trinomial	<input type="checkbox"/> _____ Polynomial
(c) $-a^3 + 5a^2 + 11a - 3$	<input type="checkbox"/> Monomial	<input type="checkbox"/> Binomial	<input type="checkbox"/> Trinomial	<input type="checkbox"/> _____ Polynomial
(d) $3m^2 + 12m$	<input type="checkbox"/> Monomial	<input type="checkbox"/> Binomial	<input type="checkbox"/> Trinomial	<input type="checkbox"/> _____ Polynomial

8. Simplify.

(a) $-96x^3 \div 8x^2$ [K: 2]

(b) $\frac{(-18x^2)(3x)}{(-6x)(-9x)}$ [K: 3]

(c) $2x^2 - 3x - 5x + 4 - x^2 - 1$ [K: 2]

(d) $3(4x - 8) - 2(x - 5)$ [K: 6]

9. Solve algebraically. No guessing! Show your algebraic steps!

(a) $2y - 20 = 9$ [K: 2]

(b) $\frac{x}{4} + 16 = 11$ [K: 2]

(c) $-a + 12 = 18$ [K: 2]

(d) $\frac{m}{-2} + 5 = -13$ [K: 2]

10. Solve algebraically. No guessing! Show your algebraic steps!

(a) $5(3k - 7) = 10$ [K: 2]

(b) $3 + y = 7y - 9$ [K: 2]

Communication:

Write your answers in FULL English sentences. [C: 1]

11. While experimenting with a toy rocket, Dan determines that he can model the rocket's height, h , in metres, with respect to time, t , in seconds, using the equation: $h = \frac{1}{2}t^2$. Which calculation correctly finds the value of h when $t = 10$? Explain your choice. [C: 4]

a $h = \frac{1}{2} \times 10^2$
 $= 5^2$
 $= 25$

b $h = \frac{1}{2} \times 10^2$
 $= \frac{1}{2} \times 20$
 $= 10$

c $h = \frac{1}{2} \times 10^2$
 $= \frac{1}{2} \times 100$
 $= 50$

12. State the constant term, the variable term and its corresponding coefficient for $-2.5 + 6x$. [C: 3]

13. Which of the following pairs are like terms? Explain your reasoning. [C: 3]

(a) $-x^2$ and $-x^3$

(b) $6y^2$ and $3x^2$

(c) $5x$ and $-7x$

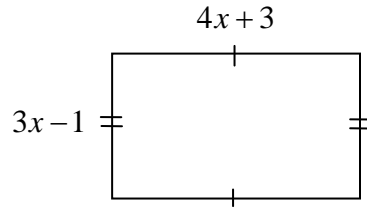
Describe the highlighted steps shown in the following questions. (1 mark per step)

<p>14. $-4y - 15 = 9$</p> <p>$-4y - 15 + 15 = 9 + 15$</p> <p>$-4y = 24$</p> <p>$\frac{-4y}{-4} = \frac{24}{-4}$</p> <p>$y = -6$</p>	<p>Step 1: _____</p> <p>_____</p> <p>Step 2: _____</p> <p>_____</p>
<p>15. $\frac{x}{2} + 11 = -1$</p> <p>$\frac{x}{2} + 11 - 11 = -1 - 11$</p> <p>$\frac{x}{2} = -12$</p> <p>$2\left(\frac{x}{2}\right) = 2(-12)$</p> <p>$x = -24$</p>	<p>Step 1: _____</p> <p>_____</p> <p>Step 2: _____</p> <p>_____</p>
<p>16. $3(2n - 7) = 15$</p> <p>$3(2n) - 3(7) = 15$</p> <p>$6n - 21 = 15$</p> <p>$6n - 21 + 21 = 15 + 21$</p> <p>$6n = 36$</p> <p>$\frac{6n}{6} = \frac{36}{6}$</p> <p>$n = 6$</p>	<p>Step 1: _____</p> <p>_____</p> <p>Step 2: _____</p> <p>_____</p> <p>Step 3: _____</p> <p>_____</p>

Application:

17. There is a basketball court at George Harvey C. I. If $3x - 5$ represents the length of the court and $2x$ represents the width of the court, write a simplified algebraic expression for the area of the basketball court. [A: 3]

18. For the given figure,



(a) write a simplified algebraic expression for its perimeter. Show your work. [A: 3]

(b) find the perimeter when $x = 2$ cm . Show your work. [A: 2]

19. The area of a rectangular parking lot can be represented by $96x^2$. Find its length if its width can be represented by $12x$. [A: 2]

20. A flower garden has a shape of a square. $8y$ represents the side length of the garden.

(a) Write a simplified algebraic expression for the area of the flower garden. [A: 2]

(b) Find the area of the flower garden if $a = 5$ m. [A: 2]

21. An equation for the perimeter, P , of a parallelogram is $P = 2b + 2c$.

(a) Determine P when $b = 5$ cm and $c = 7$ cm. [A: 2]

(b) Determine c when $P = 36$ cm and $b = 8$ cm. [A: 3]

(c) Determine b when $P = 54$ cm and $c = 12$ cm. [A: 3]

22. An electrician charges according to the equation $C = 75n + 60$, where C is the total charge, in dollars, for a house call, and n is the time, in hours, the job takes. How long does a house call that charges \$360 take?

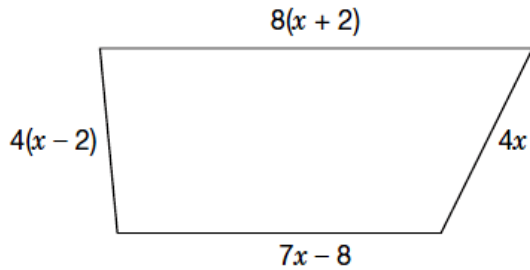
23. Peter has two part-time jobs. His earnings for one week are represented by the equation below:

$$E = 7.5r + 8.5v$$

E is his total earnings in one week; r is the number of hours he works at the restaurant and v is the number of hours he works at the video store. If he works a total of 14 hours a week with 8 hours at the restaurant, what is his total earnings for the week? [T: 4]

Thinking:

24. A field in the shape of a trapezoid has a perimeter of 460 m. A fence is being built along the field's perimeter. Determine the length of fencing needed for each side of the field. [T: 6]



25. Create a one-step equation whose solution is 5. [T: 2]

26. Create a two-step equation whose solution is 3. [T: 2]

Answers: 1. a; 2. d; 3. c; 4. b; 5. c; 6. d; 7. (a) Trinomial, (b) Monomial, (c) 4-term Polynomial, (d) Binomial;
 8. (a) $-12x$, (d) $-x$, (e) $x^2 - 8x + 3$, (d) $10x - 14$; 9. (a) 14, (b) -20 ; 10. (a) 3, (b) 2;
 11. c, after substituting t by 10, the expression needs to be evaluated following BEDMAS. Option a multiplies before evaluating exponents whereas option b multiplies 10 by 2 instead of multiplying 10 by 10. Only option c evaluates correctly following BEDMAS.;
 12. Constant term is -2.5 . Variable term is $6x$, and its coefficient is 6.;
 13. (a) are not like terms because they have same variables but different exponents. (b) are not like terms because they have same exponents for the variables but the variables are different. Only (c) are like terms because they have same variables with the same exponents.
 14. (1) Move 15 over by adding 15 to both sides, (2) Isolate y by dividing both sides with -4 ;
 15. (1) Move 11 over by subtracting 11 from both sides, (2) Isolate x by multiplying both sides with 2;
 16. (1) Expand the brackets by multiplying 3 into the brackets, (2) Move 21 over by adding 21 to both sides, (3) Isolate n by dividing both sides with 6; 17. $6x^2 - 10x$; 18. (a) $14x + 4$, (b) 32 cm;
 19. $8x$; 20. (a) $64y^2$, (b) 1600 m^2 ; 21. (a) 24 cm, (b) 10 cm, (c) 15 cm; 22. 4 hours; 23. \$111;
 24. $23x$; 25. Answers may vary. Examples are: $6x = 30$ or $y + 7 = 12$,
 26. Answers may vary. Examples are: $4x - 7 = 5$ or $-3x + 2 = -7$,