BECA/Huson/Precalculus: Sequences   First and last name:

26 September 2024   Section:

2.5 Quiz: Exponents, polynomials, sequences   Mental math - no calculators

1. Memorize the square roots of whole numbers through 100 and cubes through five.

   (a) $\sqrt{25} =$

   (b) $\sqrt{81} =$

   (c) $\sqrt{9} =$

   (d) $\sqrt{36} =$

   (e) $\sqrt[3]{64} =$

   (f) $\sqrt[3]{125} =$

2. Evaluate each expression.

   (a) $\frac{1}{5} \cdot 30 =$

   (b) $\frac{5}{6} \cdot 12 =$

   (c) $\frac{4}{7} \cdot 12 \cdot \frac{7}{4} =$

   (d) $\frac{3}{5} \cdot \frac{7}{3} \cdot 10 =$

3. Simplify each expression by "collecting like terms"

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

   (b) $4\sqrt{7} + 3a - 2\sqrt{7} - 10a$

4. Simplify using the exponent rules. (you do not need to calculate)

   (a) $4^5 \cdot 4^3 =$

   (b) $x^5 \cdot x^2 =$

   (c) $\frac{13^5}{13^3} =$

   (d) $\frac{y^9}{y^5} =$

5. Use the function $f(x) = 2x - 9$ to answer the questions.

   (a) What is $f(-3)$?

   (c) Solve for x if $f(x) = 13$.

   (b) Find $f(\frac{1}{4})$

6. Given the polynomial function $f(x) = 2x^4 + 5x^3 - x^2 + 3x - 6$.

   (a) What is the degree of the polynomial?

   (b) Write down the leading coefficient of f.

   (c) What is the value of the constant term?

   (d) Find $f(0)$.

7. Simplify the sum of these two polynomials: $(3x^3 + 5x^2 + x + 6) + (x^3 - 2x^2 + 7x - 8)$

8. Given the polynomials $s = 2x - 1$ and $t = 5x + 7$, write an equivalent expression for $s - t$ and simplify.

9. Expand the expression to a polynomial in standard form: $(3x - 7)(x + 5)$.

10. Write a recursive formula for each sequence. Use subscript notation.

    (a) $3, 6, 12, 24, 48, \ldots$

    (b) $\dfrac{3}{4}, \dfrac{5}{4}, \dfrac{7}{4}, \dfrac{9}{4}, \ldots$

11. Fill in the blank: "Slow and _____ wins the race."