

Algebra 2 -- INDIVIDUAL

Name _____

School: _____

Solve each question. Round your answer to the nearest hundredth.

- 1) It takes Ryan eight hours to pick forty bushels of apples. Scott can pick the same amount in ten hours. Find how long it would take them if they worked together.

Solve each compound inequality.

2) $6 - 9p \geq 24$ or $p + 8 \geq 15$

- 3) The school that Castel goes to is selling tickets to a choral performance. On the first day of ticket sales the school sold 6 adult tickets and 5 student tickets for a total of \$88. The school took in \$148 on the second day by selling 12 adult tickets and 8 student tickets. Find the price of an adult ticket and the price of a student ticket.

Solve each system by elimination.

$$\begin{aligned} 4) \quad & -2x + y + 2z = -2 \\ & x + 5y - z = -21 \\ & 5x - y + 6z = 10 \end{aligned}$$

Evaluate each determinant.

$$5) \begin{vmatrix} 4 & 1 & -5 \\ 3 & 0 & -5 \\ 4 & -3 & 5 \end{vmatrix}$$

Simplify.

6) $2(-1 + i) + (3i)(2 + 6i)$

Solve each equation with the quadratic formula.

7) $8v^2 - 3v = -12$

Find each term described.

8) 2nd term in expansion of $(5n - m)^3$

Divide.

9) $(x^3 - 15x^2 + 52x + 20) \div (x - 6)$

Factor each completely.

10) $64a^3 + 27$

Evaluate each function at the given value.

11) $f(a) = a^3 + 2a^2 - 23a - 4$ at $a = -6$

Write a polynomial function of least degree with integral coefficients that has the given zeros.

12) 5 mult. 2, -3

Find all roots.

13) $x^3 + 4x^2 + 2x + 8 = 0$

Evaluate each function.

14) $g(n) = n^2 - 3 - 2n$; Find $g(n + 1)$

Simplify.

15) $(1 + \sqrt{5v})(-4 - 4\sqrt{5v})$

Identify the domain and range of each.

16) $y = 2\sqrt{x+5} + 1$

Identify the vertex of each.

17) $y = \frac{1}{2}x^2 + 6x + 24$

Simplify each expression.

18) $\frac{p+4}{8p-80} \div \frac{p^2+5p+4}{4p^2+4p}$

Solve each equation. Remember to check for extraneous solutions.

19) $\frac{k+1}{k^2} - \frac{1}{6k^2} = \frac{2}{k^2}$

Solve each equation.

20) $6^{3v+1} \cdot 6^{1-2v} = 1$

Find the inverse of each function.

21) $y = \log(2x)$

Solve each equation.

22) $\log_6 x + \log_6(x+1) = 1$

Find the 8th term.

23) 3, -9, 27, -81, ...

State if each scenario involves a permutation or a combination. Then find the number of possibilities.

- 24) Danielle has homework assignments in six subjects. She only has time to do three of them.