

Cumulative Test 15A

1. (24) Solve and classify the system.

$$\begin{cases} \frac{1}{3}x + \frac{1}{2}y = 8 \\ x - \frac{2}{3}y = -2 \end{cases}$$

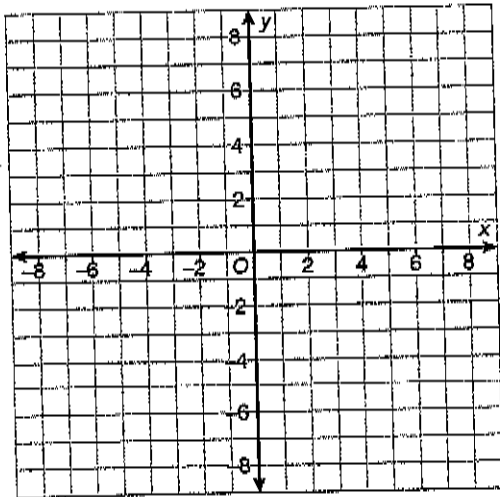
2. (Inv. 7) A manager gives a store evaluation form to each customer. Customers who mail in their completed forms receive a coupon. Identify the type of sample and determine whether it is biased. Explain your answer.

3. (38) Divide $(24x^3 - 16x^2 + 15x + 7)$ by $8x$.

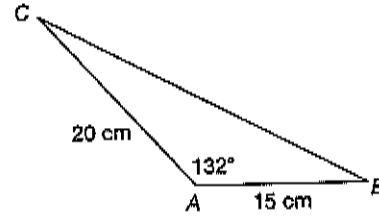
4. (62) Simplify $-5\sqrt{-81}$.

5. (75) Graph the square root function and its inverse. Determine the domain and range of both functions.

$$y = \sqrt{x - 2}$$



6. (71) Find the area of $\triangle ABC$. Round to the nearest tenth.



7. (50) Find an equation for the inverse of $y = 2x^2 - 3$. Identify the domain and range of each relation.

8. (58) Solve $x^2 + 28x + 196 = 7$.

9. (74) A gardener has 320 feet of fencing material to enclose a rectangular area of land. She wants the fenced-in area to be 6400 square feet. The equation $w(160 - w) = 6400$ gives the width that meets these requirements. Use the discriminant to explain why these requirements can be met.

10. (8) Change $\frac{9}{8}$ to a percent.

11. (72) Evaluate $\log_8 64$.

12. (20)

Given $f(x) = 8x - 9$; $D = \{\text{Reals}\}$,
 $g(x) = x - 4$; $D = \{\text{Integers}\}$, find the
 algebraic difference $\{f - g\}(x)$.

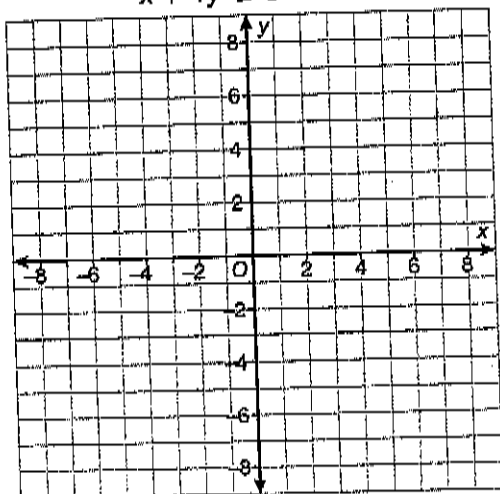
13. (33) A student is choosing a five-digit
 password. Only the digits 1 through 7 are
 allowed. How many passwords are
 possible if digits may not be repeated?

14. (11) Classify the polynomial by degree and
 by number of terms.

$$x^3 + 7x - 8x^3 + 18$$

15. (43) Graph the system of linear
 inequalities.

$$\begin{aligned} x &\geq -6 \\ x + 4y &\leq 8 \end{aligned}$$



16. (41) The sides of a triangle measure 9 m,
 18 m, and 20 m. Is the triangle a right
 triangle?

17. (66) Find the roots of the equation. Give
 the multiplicity of each root.

$$x^5 + 10x^4 + 25x^3 = 0$$

18. (73) A researcher visits a park and
 captures and marks 25 squirrels. On a
 return visit the next week, the researcher
 captures 38 squirrels, and 18 of them are
 marked from the previous week. Estimate
 the squirrel population in the park.

19. (56) Find the measure of one positive and
 one negative coterminal angle to the
 angle 72° .

20. (67) Solve $6\cos\theta - 3\sqrt{2} = 0$, for
 $0^\circ \leq \theta \leq 360^\circ$.