

PLANT CITY HIGH SCHOOL INVITATIONAL
ALGEBRA I INDIVIDUAL TEST
February 24, 2001

(NOTA means none of the above)

- In a group of 30 girls, 15 play softball, 9 play basketball and 3 play both softball and basketball. How many girls in the group play neither softball nor basketball?
a) 3 b) 6 c) 9 d) 12 e) NOTA
- A boy walks A miles in B minutes. If he continues at the same rate, how far will he travel in C hours?
a) $AC/60B$ b) $ABC/60$ c) $60ABC$ d) $60AC/B$ e) NOTA
- If $x + 3 = y$, what is the value of $|x-y| + |y-x|$?
a) -3 b) 0 c) 3 d) 6 e) NOTA
- The scale of a map states that $\frac{1}{4}'' = 1$ mile. What is the distance in feet between 2 points that are $4\frac{2}{3}$ inches apart on the map?
a) $18\frac{2}{3}$ ft. b) 6160 ft. c) 24,640 ft. d) 98,560 ft. e) NOTA
- If $y = x^2 + 1$, express $2y(x+1) - y(x-2)$ in terms of x.
a) $x^3 + 2x^2 + x + 5$ b) $x^3 + 4x^2 + x + 4$ c) $x^3 + 12x^2 + x + 4$
d) $x^3 + 4x^2 + x + 15$ e) NOTA
- Simplify: $\frac{xy^{-1} - x^{-1}y}{x - y}$
a) $\frac{x+y}{xy}$ b) $\frac{1}{y} - \frac{1}{x}$ c) $x + y$ d) $\frac{(x-y)^3}{xy}$ e) NOTA
- Solve for x: $\frac{2}{x-2} + \frac{1}{x+2} - \frac{2x}{x^2-4} = 2$
a) $\{-\frac{5}{2}\}$ b) $\{-2, \frac{5}{2}\}$ c) $\{0\}$ d) $\{\frac{5}{2}\}$ e) NOTA
- For $\frac{1}{a} + \frac{1}{b} = \frac{1}{c}$, $a \neq c$, and $a, b, c \neq 0$, solve for b.
a) $c-a$ b) $(a-c)/ac$ c) $(a/c)-a$ d) $ac/(a-c)$ e) NOTA
- Evaluate: $-|-3| + |4|$
a) -7 b) 7 c) 1 d) -1 e) NOTA

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10. Name all the set(s) of Real numbers to which 15.1515... belongs.

- a) Real, Rational, Whole, Natural, Integer, Irrational
- b) Real, Rational
- c) Real, Irrational
- d) Real, Rational, Whole, Natural, Integer
- e) NOTA

11. Evaluate: $-5^2 + 5^2 + (-5)^2 - 5^2$

- a) 0
- b) 5
- c) 25
- d) 50
- e) NOTA

12. Find the mean of the median and mode of the following numbers.

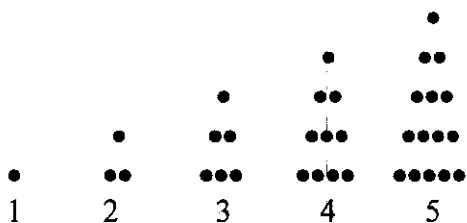
stem	leaf
0	9 9
1	3 4 5 7
2	8 8 8 9
3	2 7

- a) 28
- b) 25.25
- c) 22.5
- d) 21.58
- e) N0TA

13. Find the value of y if $y = \frac{14x - 8}{2x}$ and $x = 4$

- a) 4
- b) 6
- c) 55
- d) 56
- e) NOTA

14. How many dots will there be in the 23rd picture in the sequence:



- a) 250
- b) 38
- c) 276
- d) 280
- e) NOTA

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15. Solve for r: $9r + 8 - 7r = \frac{16r + 16}{32}$

- a) -5 b) 3 c) 18 d) -17 e.) NOTA

16. Factor completely: $12p^6 - 27p^4$

- a) $(6p^5 + p^4)(2p - 3)$ b) $3p^4(2p + 3)^2$
c) $3p^4(2p + 3)(2p - 3)$ d) $(4p^6 - 3)(3 + 9p^4)$
e) NOTA

17. If e varies directly as g and inversely as h , and if $e = 6$ when $g = 18$ and $h = 12$, find g when $e = 12$ and $h = 3$.

- a) 12 b) 36 c) 9 d) 8 e) NOTA

18. Solve for y: $(-y + 4) + (10 - 3y) + (7y - 5) + (8 + 2y) + (5y - 8) = 109$

- a) 11.8 b) 10 c) 4.11 d) -8 e) NOTA

19. Simplify: $(6p^2 + 10pq + 6q^2) / (3p + 2q)$

- a) $3p + 2q + \frac{q^2}{3p + 2q}$ b) $2p + 2q + \frac{2q^2}{3p + 2q}$
c) $2p + 2q + \frac{q^2}{3p + 2q}$ d) NOT

20. The difference of the squares of two consecutive positive odd integers is 64. Find the sum of the two integers.

- a) 15 b) 17 c) 25 d) 32 e) NOTA

21. Solve the system, then find $x + y$:

$$\begin{aligned} 2x + 4y &= -4 \\ -5x - 7y &= 4 \end{aligned}$$

- a) 2 b) 5 c) 10 d) 34 e) NOTA

22. Evaluate for $m = 3$ and $q = 4$, $\sqrt{(m^2 q^2 (q(m(qm))))^2}$

- a) 1032 b) 10,841 c) 20,736 d) 50,702 e) NOTA

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23. Billy Bob is 5 years older than Jimbo, who is 4 squared years younger than Ellie Mae. Ellie Mae was 21, 6 years ago. How old is Billy Bob?
- a) 27 b) 16 c) 10 d) 11 e) NOTA
24. If $(x \odot y) = x^2 - xy + y$, then $(7 \odot -3)$ equals?
- a) 32 b) 25 c) 67 d) 23 e) NOTA
25. Find the equation of the line that passes through the point (4,1) and is perpendicular to the line with the equation $2x - y = -5$.
- a) $y = 2x + 5$ b) $y = 2x + 3$ c) $y = -\frac{1}{2}x + 3$ d) $y = -\frac{1}{2}x + 5$ e) NOTA
26. One number is 40 less than another number. Two thirds of the lesser number is equal to one fourth of the greater number. Find the greater number.
- a) 24 b) 16 c) 64 d) 42 e) NOTA
27. A cargo ship must travel at an average speed of 25 km/h to make its 14 h run on schedule. During the first 4 hours, bad weather forced the captain to reduce speed to 20 km/h. What should the average speed of the ship be for the rest of the trip to keep on schedule?
- a) 17 km/h b) 27 km/h c) 30 km/h d) 47 km/h e) NOTA
28. A baseball player's batting average is 0.167. In the next 12 times at bat, how many times would you expect the player to get a hit?
- a) 1 b) 2 c) 3 d) 4 e) NOTA
29. In right triangle ABC, C is a right angle, $c = 15$ and $a = 12$ find b .
- a) 3 b) 6 c) 9 d) 12 e) NOTA
30. Which of the following is a solution for $x^3 - x = 0$?
- a) -2 b) 2 c) -3 d) 1 e) NOTA