

Beverly Hills High School -- Algebra 1 -- Quest #1 -- Chapter 1 -- 80 points

Always show your work. Partial credit for partial performance. Pencils only. Be clear, complete and neat.
All problems are three points unless specified otherwise. Always reduce fractions too.

Write the following algebraic expressions in English:

1) $7x + 6$ _____

2) $12 - n^2$ _____

3) $\frac{b + 5}{20}$ _____

4) $-9(3t + v)$ _____

Write the following English descriptions in algebraic symbols:

5) The product of four and a number to the third power _____

6) Twice the difference of a number and nineteen _____

7) The quotient of a number squared and the sum of the same number and one _____

Evaluate each of the following using the proper rules for the order of operations (PEMDAS):

8) $12 - (3 + 1)^2 + 18 \div 3$

9) $48 \div \frac{2(3+1)}{3^2 - 2^3}$

10) $(10 - (4^2 + 2) \div 3)^2 + 9$

11) $4 - \frac{(8 - 6)^4}{12 - (5 - 3)^2}$

12) $8a^2 - 3b^3$ if $a = 2$ and $b = -2$

13) $\frac{n^2 - 3n + 4}{15 + n - n^2}$ if $n = 3$

14) Five points. Show the Newton's Algorithm calculation, to three decimals places, for $\sqrt{110}$.

15) Five points. Construct and draw a Venn diagram using all of these statements about candy.

- a) About half of all candy has chocolate in it.
- b) Some candy has nuts.
- c) Some chocolate candy has nuts.
- d) Some candy contains cinnamon.
- e) No chocolate candy has cinnamon.
- f) No cinnamon candy contains nuts.

Let this box represent all candy.



16) Construct a counter-example that disproves that subtraction is associative:

Matching Section. Write the letter that best corresponds to each example. Two points each here.

- | | |
|---|---|
| _____ 17) $67 + 48 = 48 + 67$ | a) zero property |
| _____ 18) $5(x - y) = 5x - 5y$ | b) associative property of addition |
| _____ 19) $8 \cdot (4 \cdot 3) = (8 \cdot 4) \cdot 3$ | c) closure |
| _____ 20) $2847 + 0 = 2847$ | d) commutative property of addition |
| _____ 21) $a \cdot b$ is a real number. | e) subtractive property of advancement |
| | f) distributive property |
| | g) commutative property of multiplication |
| | h) identity property |
| | i) associative property of multiplication |

For each of the following, describe which number sets each belongs to (they're all real, so don't write that)...

22) -856 _____

23) $\sqrt{4\pi}$ _____

24) 0 _____

List each of the following groups of quantities in order, from greatest to least:

25) $\frac{2}{7}, \frac{3}{10}, .29, \sqrt{.095}$

26) $-8.1, -\sqrt{64}, \frac{2000}{-255}, \frac{-17}{2}$

27) Name one website you can go to for algebra help any time of the day or night (from your own list):

28) EXTRA CREDIT -- Three points -- All or Nothing -- Guessing is okay.

If a chicken and a half lays an egg and a half in a day and a half, how long does it take ten chickens to lay ten eggs?