

TEST #4 REVIEW 2

11. a) The tallest tree in the world, Hyperion in California, is about 10^2 m tall. The highest mountain, Mount Everest, is about 10^4 m high. About how many times as high as the tree is the mountain?



- b) Earth's diameter is about 10^7 m. The largest known star has a diameter of about 10^{12} m. About how many times as great as the diameter of Earth is the diameter of the largest known star?

12. Write each number in standard form.

- a) $(4 \times 10^3) + (7 \times 10^2) + (2 \times 10^1) + (9 \times 10^0)$
 b) $(3 \times 10^5) + (2 \times 10^2) + (8 \times 10^0)$

- 2.3 13. Evaluate.

- a) $3^4 + 3^2$ b) $(-4)^2 + (-4)^3$
 c) $10^3 - 10^2$ d) $(-5)^4 - (-5)^2$

14. Evaluate.

- a) $2^3 + (5 - 2)^4$
 b) $100 \div 2 + (4 + 1)^3$
 c) $(6^2 + 7^2)^0 - (8^4 + 2^4)^0$
 d) $3 \times 2^3 + 8 \div 4$
 e) $(21 \div 7)^4 - 2^3$
 f) $[(-4)^0 \times 10]^6 \div (15 - 10)^2$

15. Scientists grow bacteria.

This table shows how the number of bacteria doubles every hour.

Time	Elapsed Time After Noon (h)	Number of Bacteria
noon	0	1000×2^0
1:00 P.M.	1	1000×2^1
2:00 P.M.	2	1000×2^2
3:00 P.M.	3	1000×2^3

- a) Evaluate the expressions in the table to find the number of bacteria at each time.

- i) noon ii) 1:00 P.M.
 iii) 2:00 P.M. iv) 3:00 P.M.

- b) The pattern continues. Write an expression, then evaluate it, to find the number of bacteria at each time.

- i) 4:00 P.M. ii) 6:00 P.M.
 iii) 9:00 P.M. iv) midnight

16. Use a calculator to evaluate this expression:

$$4^3 - (2 \times 3)^4 + 11$$

Change the position of the brackets.

Evaluate the new expression. How many different answers can you get by changing only the position of the brackets?

17. Identify, then correct, any errors in the student work below. Explain how you think the errors occurred.

$(-2)^2 \times 2^3 - 3^2 \div (-3) + (-4)^2$
$= (-2)^5 - 9 \div (-3) + 16$
$= -32 - 3 + 16$
$= -35 + 16$
$= -19$