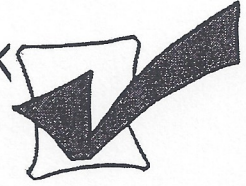


NAME \_\_\_\_\_ Date \_\_\_\_\_

## UNIT 2 TAKE HOME AND CHECK



\*\* challenge problems

- 1) List the next three terms in this sequence, describe the pattern and then put the sequence into a table:

15625, 3125, 625, 125,

- 2) List the next three terms in this sequence and describe the pattern:

$\frac{2}{3}, \frac{4}{3}, \frac{8}{3}, \frac{16}{3}$

- 3) The preceding number is 60. Each succeeding number is 6 less than the preceding number.

- 4) Write as a power and use a calculator to solve:

$\frac{2}{5} \cdot \frac{2}{5} \cdot \frac{2}{5} \cdot \frac{2}{5} \cdot \frac{2}{5} \cdot \frac{2}{5}$

- 5) Find the value using a calculator:

$\sqrt{676}$

1)

2)

3)

4)

5)

Evaluate: (no calc)

6)  $9^0$

7)  $2^8$

8)  $4^4 + 2^2$

9)  $3^2 - 6^2$

Evaluate without using a calculator:

10)  $3[2^4 \div 4 - 2]$

11)  $18 - 6 \div 2$

12)  $20 - (2^5 \div 4^2) \cdot 6$

13)  $7 - 15 \cdot 3 + 3^2$

6)

7)

8)

9)

10)

11)

12)

13) :



$$14) 24 + (3^2 \div 3) \cdot 11$$

14)

Evaluate the expressions when  
 $A = -2, b = 5$

$$15) b - a$$

15)

$$16) a^2 \cdot b$$

16)

$$17) -a - b$$

17)

$$18) (4b) \div (2a)$$

18)

$$19) -a^3$$

19)

$$20) b(9 + a)$$

20)

- 21) I am making a beaded bracelet. Between beads I am putting little square picture frames that have an area of  $9\text{cm}^2$ . I want to cover the squares' perimeters with pink borders. How much border should I buy?

- 22) The train that goes through Medfield travels at 22 miles/hour. It goes 176 miles. How long does it take? (you may use a calculator)

\*\*23)  $3 \cdot \frac{2 \cdot 4 + 1 \cdot 5^2}{2 + 2} - 6$

\*\*24)  $-15 \div 4 + 3\frac{1}{4}$

21)

22)

23)

24)

25)

$$*25) \frac{1}{8} \left[ (-6-4) + (3+11) \div -\frac{1}{3} \right]$$

\*\*26) Over the last 2,000 years, Earth's population has doubled approximately five times. Use exponential notation to write an expression that indicates doubling five times.

26)

\*\*27) Evaluate if

$$m=4, n=-\frac{3}{2} \text{ and } p=\frac{2}{3}$$

$$mn - np + m^2$$

27)



28) Mr. Vaughn travels over Thanksgiving for 4 hours to go 280 miles. How fast was he going? (show the formula)

28)

29) Every year you and your family drive to your cousin's house 253 miles away. The trip usually takes five and a half hours. Find the average speed that you travel. (show the formula)

29)

\*\*30) Tom formed a sequence of numbers using the equation  $2x + 1 = \underline{\quad}$  as shown below.

30)

Term 1:  $2(1) + 1 = 3$   
Term 2:  $2(3) + 1 = 7$   
Term 3:  $2(7) + 1 = 15$   
Term 4:  $2(15) + 1 = \underline{\quad}$

What are the first 5 terms in Tom's sequence?

- A) 3, 7, 15, 31, 62
- B) 3, 7, 15, 31, 63
- C) 3, 7, 15, 30, 61
- D) 3, 7, 15, 30, 60

1) The first five terms of a pattern are shown below. The rule of the pattern is to multiply by 2 and then subtract 1.

4, 8, 7, 14, 13, ...

What should be the seventh term of this pattern?

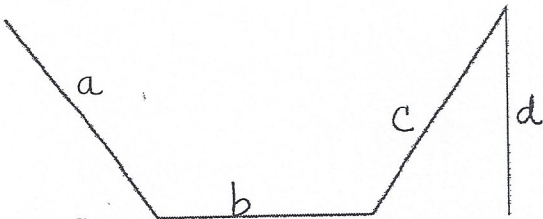
- A) 13
- B) 14
- C) 25
- D) 50

32)  $x^0 =$

33) What sequence is this?

1, 1, 2, 3, 5, 8, 13, ....

34) Label the type of slope of each line segment below.



31)

32)

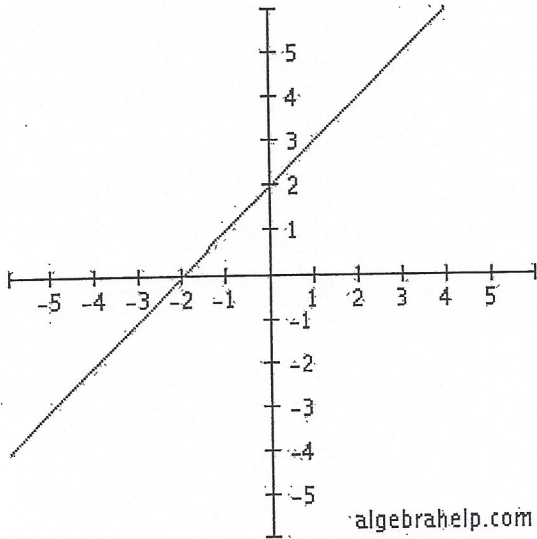
33)

34)



35) Which is most likely the slope of the line graphed below?

- a) 2
- b)  $\frac{1}{2}$
- c) 1
- d) -2



35)