



## Homework Problems

Circle the homework problems assigned to you by the computer, then complete them below.



### Explain Number Line and Notation

1. Circle the true statements.

$3 < 12$

$4 \leq 4$

$5 = \frac{20}{4}$

$6 \neq 7$

$-2 < -6$

2. Find the absolute values:

a.  $|7|$

b.  $|-3|$

c.  $|0.4|$

d.  $|-1.6|$

e.  $|-0.72|$

3. Find the value of  $5^4$ .

4. Circle the true statements.

$2 \neq 3$

$-8 < -4$

$9 > 6$

$2 \geq \frac{5}{8}$

$8 < 4$

5. Find the absolute values:

a.  $|9|$

b.  $|-17|$

c.  $|2.3|$

d.  $|-4.8|$

e.  $|-0.485|$

6. Rewrite using exponents:  $6 \cdot 6 \cdot 6 \cdot 6 \cdot 6$

7. Find:  $|-2^3|$

8. Find:  $3^2 \cdot 4^3$

9. Restaurants buy eggs in bulk by the box. Each box of eggs contains 12 cartons. Each carton has 12 rows and each row contains 12 eggs. Which of the following expresses the number of eggs in a box?

$12 \cdot 3$

$12^3$

$3^{12}$

$12(12 + 12 + 12)$

$12 + 12 + 12$

10. In a small town, 7 sisters each had 7 baskets.

In each basket, there were 7 cats.

Each cat had 7 kittens.

In total, how many kittens were there?

11. Rewrite using exponents:  $2 \cdot 2 \cdot 2 \cdot 2 \cdot 7 \cdot 7 \cdot 7$

12. Find:  $3^3 \cdot 5^2$



## Explore

13. Plot the points  $1$ ,  $-\sqrt{3}$ , and  $\sqrt{2}$  on a number line, then list them in order from smallest to largest.



14. On the number line,  $A = 47$  and  $B = 59$ . Which expression represents the distance between  $A$  and  $B$ ?

$$|47| - |59|$$

$$|47 - 59|$$

$$|59| + |47|$$

$$\frac{|47 + 59|}{2}$$

15.  $A$  and  $B$  are two points on the number line and  $A > B$ . If  $A = 16.7$  and the distance between the points is  $7.9$ , what is the coordinate of  $B$ ?

16. Plot the points  $5$ ,  $\sqrt{29}$ ,  $\pi$ , and  $\sqrt{6}$  on a number line, then list them in order from smallest to largest.

17. On the number line,  $A = 124$  and  $B = -29$ . Which expression represents the distance between  $A$  and  $B$ ?

$$|124| - |-29|$$

$$|124| + |-29|$$

$$\frac{|124 - 29|}{2}$$

$$|124 - 29|$$

18.  $A$  and  $B$  are two points on the number line. If  $A = 9.4$  and the distance between the points is  $5.7$ , what are the two possibilities for the coordinate of  $B$ ?



## Practice Problems

Here are some additional practice problems for you to try.

### Number Line and Notation

1. Circle the true statements.

$$9 = 9$$

$$5 > 5$$

$$7 \leq 11$$

$$15 \leq 15$$

$$2 < 0$$

2. Circle the true statements.

$$5 \neq 5$$

$$6 \leq 6$$

$$7 < 7$$

$$12 \geq 12$$

$$1 > 0$$

3. Circle the true statements.

$$7 \neq 7$$

$$4 < 4$$

$$6 \leq 12$$

$$9 \geq 9$$

$$10 > 15$$

4. Find the absolute values.

a.  $|7|$

b.  $|-9|$

c.  $|0.25|$

d.  $|2.3|$

e.  $|-7.45|$

5. Find the absolute values.

a.  $|0|$

b.  $|100|$

c.  $|-0.001|$

d.  $|4.33|$

e.  $|-2.497|$

6. Find the absolute values.

a.  $|-6|$

b.  $|3|$

c.  $|0.5|$

d.  $|1.9|$

e.  $|-5.18|$

7. Find:  $8^2$

8. Find:  $5^3$
9. Find:  $7^3$
10. Find:  $2^7$
11. Find:  $3^5$
12. Find:  $2^5$
13. Rewrite using exponents:  $7 \cdot 7 \cdot 7 \cdot 7 \cdot 7 \cdot 7 \cdot 7 \cdot 7$
14. Rewrite using exponents:  $10 \cdot 10 \cdot 10 \cdot 10$
15. Rewrite using exponents:  $8 \cdot 8 \cdot 8 \cdot 8 \cdot 8$
16. Given the sets  $P$  and  $Q$  below, determine whether the following statements are true or false.
- $P = \{3, 5, 7, 9, 11\}$
- $Q = \{1, 3, 6, 9, 12, 15\}$
- $P \subset Q$
  - $Q \not\subset P$
  - $3 \notin P$
  - $3 \in Q$
17. Given the sets  $S$  and  $T$  below, determine whether the following statements are true or false.
- $S = \{2, 4, 6, 8, 10, 12, 14\}$
- $T = \{4, 8, 12\}$
- $T \subset S$
  - $S \subset T$
  - $4 \in S$
  - $4 \in T$
18. Given the sets  $R$  and  $S$  below, determine whether the following statements are true or false.
- $R = \{1, 2, 5, 7, 8, 9\}$
- $S = \{1, 2, 5\}$
- $S \subset R$
  - $R \not\subset S$
  - $2 \in R$
  - $2 \in S$
19. Find:  $|-4^3|$
20. Find:  $|-5^2| - |3^3|$
21. Find:  $|3^2| - |2^3|$
22. Find:  $3^4 \cdot 2^3$
23. Find:  $5^3 \cdot 4^2$
24. Find:  $2^4 \cdot 9^2$
25. On the number line,  $A = 36$  and  $B = -16$ . Write an expression that represents the distance between  $A$  and  $B$ .
26. On the number line,  $C = -36$  and  $D = -17$ . Write an expression that represents the distance between  $C$  and  $D$ .
27.  $A$  and  $B$  are two points on the number line. If  $A = 31.7$  and the distance between the points is  $7.3$ , what are the two possibilities for  $B$ ?
28.  $E$  and  $F$  are two points on the number line. If  $E = -25.6$  and the distance between the points is  $4.7$ , what are the two possibilities for  $F$ ?

## Practice Test

Take this practice test to be sure that you are prepared for the final quiz in Evaluate.

1. Circle the true statements.

$$3 > -4$$

$$-5 > -7$$

$$2 < 2$$

$$0 \geq 3$$

$$-6 \leq -6$$

$$-1 \geq -1$$

2. Find the absolute values:

a.  $|8|$

b.  $|-12.18|$

c.  $|-0.23|$

d.  $|15|$

e.  $|3.7|$

3. Which of the symbols,  $>$ ,  $<$ ,  $\geq$ ,  $\leq$ ,  $=$ , and  $\neq$ , could replace the ? below to make a true statement?

$$-7 ? -9$$

4. Which of the following is a rational number between 0 and 1?

$$(.91)^2$$

$$\sqrt{.91}$$

$$\frac{1}{\sqrt{2}}$$

$$-\left|\frac{2}{3}\right|$$

5. The population of a colony of insects raised in a laboratory doubles every week. If you start with 2 insects, you will have 4 insects after 1 week, 8 insects after 2 weeks, and so on. How many insects will you have after 4 weeks?

$$5 \cdot 2$$

$$4^2$$

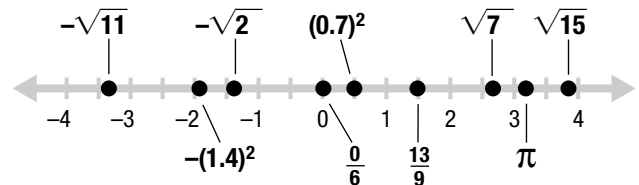
$$2 + 2 + 2 + 2$$

$$2^4$$

$$2^5$$

6.  $A$  and  $B$  are two points on a number line, and  $A < B$ . If  $A = -1$  and the distance between the two points is 2.5, what is the coordinate of  $B$ ?

7. Find the points on the given number line which have an absolute value less than 2.



8. Which expression represents the distance on the number line between  $-47$  and  $36$ ?

$$|-47 + 36|$$

$$|36 - 47|$$

$$|36 + 47|$$

$$|-47| - |36|$$