# Assignment midterm-practice2 due 10/27/2022 at 12:00am EDT



#### **Midterm Practice Introduction**

This problem set is for practice and is **not** worth anything.

You can attempt each problem as many times as you like and you can view the answers to a question by selecting the CorrectAnswers checkbox.

### **2.** (1 point)

Let 
$$A = \{1, 8\}$$
 and  $B = \{4, 7\}$ .

Determine the following sets. Express your answers using set notation.

$$A \times B =$$

$$B \times A =$$

### **3.** (1 point)

Let 
$$A = \{2, 6, 8\}$$
 and  $B = \{\}$ .

Determine the following sets. Express your answers using set notation.

$$A \times B =$$

$$B \times A = \underline{\hspace{1cm}}$$

#### **4.** (1 point)

Suppose A and B are sets such that  $A \times B = \{(3,4), (1,0), (3,0), (8,0), (8,4), (1,4)\}.$ 

Determine the following sets. Express your answers using set notation.

 $A = \underline{\hspace{1cm}}$ 

 $B = \underline{\hspace{1cm}}$ 

#### **5.** (1 point)

Express the relation  $\leq$  on the set  $\{1,2\}$  as a set of ordered pairs.

#### Click here for help with set notation.

<b>6.</b> (1 point)	
Determine the inve	rse of the relation $\{(9,-2),(-6,2),(4,-10),(6,10)\}.$
Click here for help with set notation.	
7. (1 point) pair that is an elem	Suppose the ordered pair $(3, -8)$ is an element of the relation $R$ . Determine an ordered ent of the inverse relation $R^{-1}$ .
<b>8.</b> (1 point)	
Consider the relation	on R from $\{1,2,3,4\}$ to $\{3,7,9,12\}$ given by $a R b \leftrightarrow  a^2 - b  \le 1$ .
What is the do	omain of R?
What is the ra	nge of R?
Write your answers	s using <b>set notation</b> .
<b>9.</b> (1 point)	
	on R from $\{1,2,3,4\}$ to $\{3,4,5,6\}$ given by $R = \{(1,3),(1,4),(1,6),(2,3),(2,6),(4,3)\}$
What is the do	omain of R?
What is the ra	nge of R?
	s using <b>set notation</b> .

Let  $A = \{1, 2, 3, 4\}$ , let  $B = \{2, 4, 5\}$ , and let  $C = \{4, 8, 9, 11\}$ . Consider the relation R from A to B given by  $R = \{(1,5), (3,4), (4,5)\}$ , and the relation S from B to C given by  $b \ S \ c \leftrightarrow 2b < c$ .

What is  $S \circ R$ ?

## Click here for help with set notation.

**11.** (1 point)

Let  $A = \{1, 2, 3, 4\}$ , and let  $B = \{3, 7, 8\}$ . Consider the relation R from A to B given by  $R = \{(1, 7), (3, 3), (3, 8), (4, 3), (4, 7)\}$ , and the relation S from B to A given by  $b S a \leftrightarrow b = 2a + 1$ .

What is  $S \circ R$ ?

What is  $R \circ S$ ?

Click here for help with set notation.

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