

7A.8 Learning Opportunity

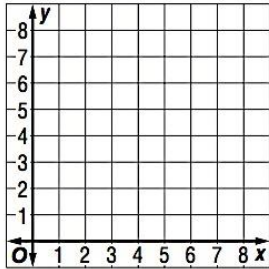
Name: _____

Relations and Functions

For problems 1 and 2, express each relation as a table and as a graph. Then determine the domain and range.

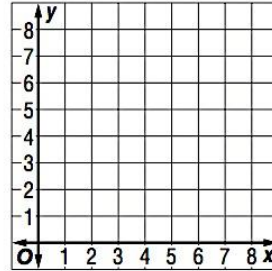
1) $\{(3, 7), (1, 1), (6, 5), (2, 4)\}$

| x | y |
|---|---|
| | |
| | |
| | |
| | |



2) $\{(0, 2), (4, 6), (3, 7)\}$

| x | y |
|---|---|
| | |
| | |
| | |



Domain:

Range:

Domain:

Range:

For problems 3 through 6, determine whether each relation is a function.

3) $\{(4, -5), (0, -9), (1, 0), (7, 0)\}$

4) $\{(-2, -3), (6, -8), (4, 2), (6, -5), (2, -5)\}$

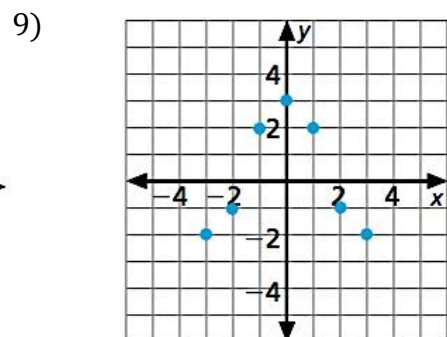
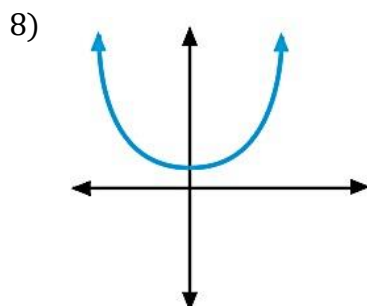
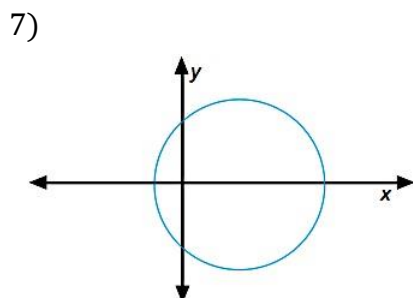
5)

| x | 4 | -5 | 11 | -5 | 23 |
|---|----|----|----|----|----|
| y | -3 | 1 | 1 | 0 | 6 |

6)

| x | 7 | 14 | 11 | -10 | -1 |
|---|----|----|----|-----|----|
| y | -3 | -9 | -4 | -3 | 15 |

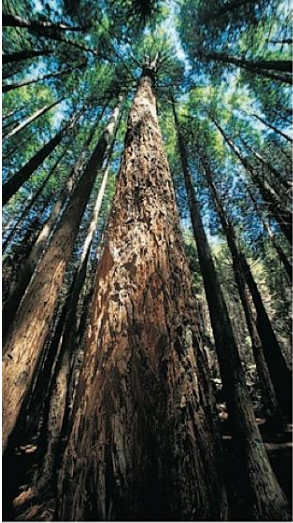
Use the vertical line test to determine whether the graphed relations below are functions.



- 10) Refer to the data on champion trees below. Let the height represent the domain and let the crown spread represent the range. Could this relation be a function? Explain your answer (hint: you do not need to graph the data to answer this question)..

Selected National Champion Trees

| Tree type | Girth* at 4.5 feet (inches) | Height (feet) | Crown Spread (feet) | Location |
|--------------------|-----------------------------|---------------|---------------------|------------------------------|
| Bluegum Eucalyptus | 586 | 141 | 126 | Petrolia |
| California-Laurel | 546 | 108 | 118 | Grass Valley, CA |
| Coast Douglas-Fir | 505 | 281 | 71 | Olympic National Forest, WA |
| Coast Redwood | 950 | 321 | 80 | Crescent City, CA |
| Common Baldcypress | 644 | 83 | 85 | Cat Island, LA |
| Giant Sequoia | 1024 | 261 | 108 | Sequoia National Park, CA |
| Port-Orford-Cedar | 451 | 219 | 39 | Siskiyou National Forest, OR |
| Sitka Spruce | 707 | 191 | 96 | Olympic National Forest, WA |
| Sugar Pine | 442 | 232 | 29 | Dorrington, CA |
| Western Red Cedar | 761 | 159 | 45 | Olympic National Forest, WA |



- 11) Nick buys an Xbox for \$296. He pays in installments, making a down payment of \$16, then payments of \$14/month.

Assuming zero interest, write a function for the amount paid $P(m)$, where m is the number of months.

How many months will it take Nick to pay for the Xbox?