

Name: Answer Key

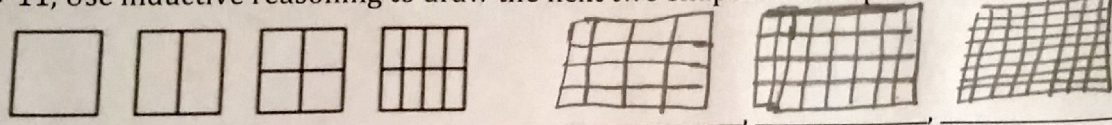
Period: M. 600

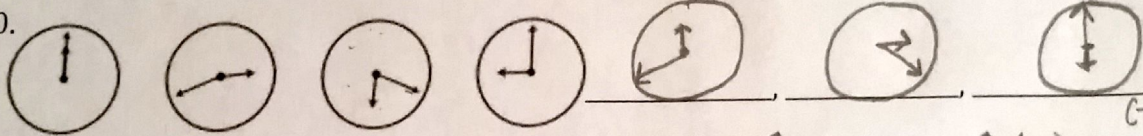
Inductive Reasoning Introduction

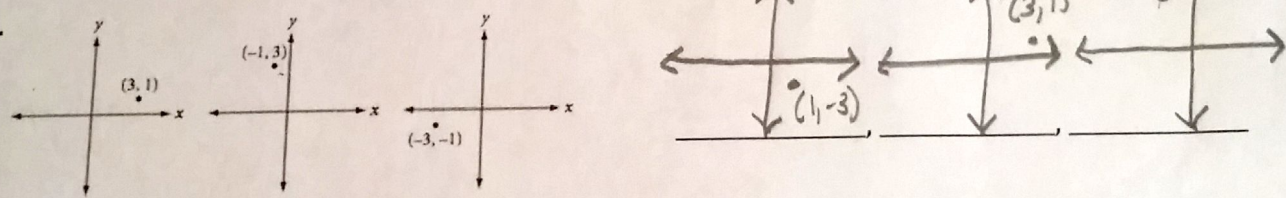
For #1-8, Use inductive reasoning to find the next three terms in the sequence.

1. 4, 8, 12, 16, 20, 24, 28 *add 4
2. 360, 180, 120, 90, 72, 60, 360/7 *divide 360 by 2, 3, 4, 5, 6, 7, ...
3. M, T, W, T, F, S, S *days of the week
4. $\frac{1}{8}, \frac{2}{7}, \frac{1}{2}, \frac{4}{5}, \frac{5}{4}, \frac{2}{3}$ *add 1 to numerator / subtract 1 from denominator
5. O, T, T, F, F, S, S, E, N, T *counting numbers (one, two, three...)
6. -5, 3, -2, 1, -1, 0, -1, -1, -2 *add 2 previous terms together
7. J, F, M, A, M, J, J, A, S, O *Months
8. 1, 5, 14, 30, 55, 91, 140, 204 *adding squares $1^2, 1^2+2^2, 1^2+2^2+3^2, \dots$

For # 9-11, Use inductive reasoning to draw the next two shapes in each pattern.

9. 

10. 

11. 

For # 12-16, Use inductive reasoning to test each conjecture. Decide if the statement is true or false. If it is false, come up with a counter example.

12. Every odd whole number is a prime.

False, $9 = 3 \times 3$ so 9 is not a prime, but an odd whole number

13. Every odd whole number can be written as the difference of two squares.

True

14. If the sum of two integers is even, then both the integers are even.

False, $3+3=6$. 3 is not an even integer, but the sum of 3 and 3 is.

15. The square of a number is larger than the number.

False, $(\frac{1}{2})^2 = \frac{1}{4}$ $\frac{1}{2}$ is greater than $\frac{1}{4}$ which is $\frac{1}{2}$ squared.

16. The product of two odd numbers is always odd.

True