HW1.5. Counting

1: How many numbers can be represented by unsigned, base-4, n-digit numbers $(n > 1)$?

- (a) 1
- (b) 2^n
- (c) $2^n - 1$
- (d) 2^{n-1}
- (e) 4^n
- (f) $4^n - 1$
- (g) 4^{n-1}

2: How many different **negative** integers are there among the n-digit, 2's complement numbers? (0 is neither positive nor negative.)

- (a) 1
- (b) $2^{n-1} - 1$
- (c) 2^{n-1}
- (d) 2^n
- (e) $2^n - 1$
- (f) n
- (g) n^2
- (h) $(n-1)^2$
- (i) n^n

3: How many different **positive** integers are there among the n-digit, 2's complement numbers? (0 is neither positive nor negative.)

- (a) 1
- (b) $2^{n-1} - 1$
- (c) 2^{n-1}
- (d) 2^n
- (e) $2^n - 1$
- (f) n
- (g) n^2
- (h) $(n-1)^2$
- (i) n^n

4: How many zeros are there among the n-digit, 2's complement numbers?

- (a) 1
- (b) $2^{n-1} - 1$
- (c) 2^{n-1}
- (d) 2^n
- (e) $2^n - 1$
- (f) n
- (g) n^2
- (h) $(n-1)^2$
- (i) n^n

5: What is the numerical difference between the most positive and most negative number that can be represented by n-digit, 2's complement numbers?

- (a) 1
- (b) $2^{n-1} - 1$

- (c) 2^{n-1}
- (d) 2^n
- (e) $2^n - 1$
- (f) n
- (g) n^2
- (h) $(n-1)^2$
- (i) n^n

Save & Grade *20 attempts left* Save only *Additional attempts available with new variants*