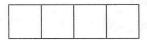# Exercise Set 1 (Calculator)
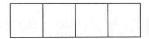
**12**

The difference of two numbers is 4 and their sum is 14. What is their product?

**13**

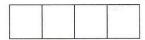If $x + y - 1 = 1 - (1 - x)$, what is the value of $y$?

**14**

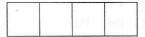If $3x^2 + 2x = 40$, then $15x^2 + 10x =$

**15**

Ellen is currently twice as old as Maria, but in 6 years, Maria will be 2/3 as old as Ellen. How old is Ellen now?

**16**

If $2x - 2y = 5$ and $x + y = 6$, what is the value of $x^2 - y^2$?

**17**

On a typical day, a restaurant sells $n$ grilled cheese sandwiches for $p$ dollars each. Today, however, the manager reduced the price of grilled cheese sandwiches by 30% and as a result sold 50% more of them than usual. Which of the following represents the revenue for today's grilled cheese sandwich sales, in dollars?

A) $0.5np - 0.3$

B) $1.05np$

C) $1.20np$

D) $1.50np$

**18**

For all real numbers $x$ and $y$, $4x(x) - 3xy(2x) =$

A) $12x^2y(x - 2y)$

B) $2x^2(2 - 3y)$

C) $2x^2(2 + 3y)$

D) $4xy(x - 3y)$

**19**

If $a = 60(99)^{99} + 30(99)^{99}$, $b = 99^{100}$, and $c = 90(90)^{99}$, then which of the following expresses the correct ordering of $a$, $b$, and $c$?

A) $c < b < a$

B) $b < c < a$

C) $a < b < c$

D) $c < a < b$

**20**

Which of the following statements must be true for all values of $x$, $y$, and $z$?

I. $(x + y) + z = (z + y) + x$

II. $(x - y) - z = (z - y) - x$

III. $(x \div y) \div z = (z \div y) \div x$

A) I only

B) I and II only

C) I and III only

D) II and III only

**21**

Carlos began with twice as much money as David had. After Carlos gave $12 to David, Carlos still had $10 more than David. How much money did they have <u>combined</u> at the start?

A) $34

B) $68

C) $102

D) $108