

## **EST December 2025**

### **Math Questions**

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1) If  $8^{2x-3} = 32$ , then  $x =$

2) what is the coefficient of  $x^2$  term in the expanded form of  
$$P(x) = (2x - 3)(x + 4) + 3x^2 - 1$$

3) If  $a$  varies inversely as  $b$  and  $a = 2$  when  $b = 8$ , what is the value of  $9a$  when  $b = 6$  ?

4) How many words can be written using the same letters of word SCANNER?

Question 5 and 6 refer to the following information.

Ahmed has a bag containing **3 sweet biscuits and 1 salty biscuit**.

He also has a box containing **4 sweet biscuits and 1 salty biscuit**.

He randomly selects **one biscuit from the box** and places it into the bag.

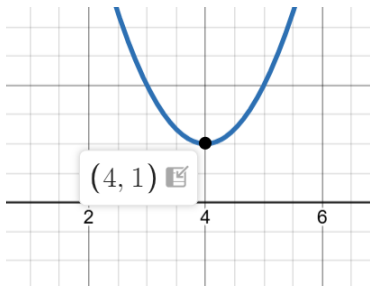
Then he randomly selects **one biscuit from the updated bag**.

5) **What is the probability that both selected biscuits are salty?**

(i.e., the biscuit taken from the box is salty *and* the biscuit taken from the new bag is salty)

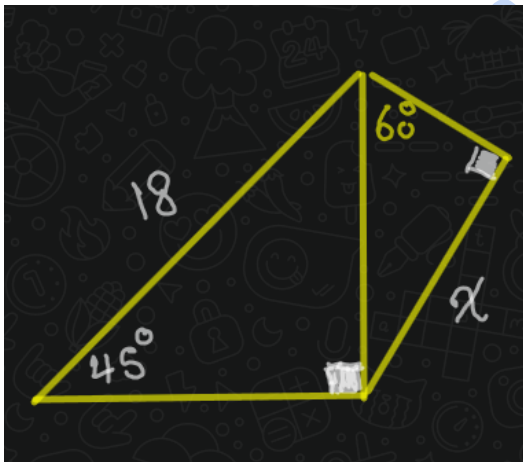
6) What is the probability that exactly one of the two selected biscuits is salty?

- 7) What is the equation of the parabola with vertex  $(4,1)$ ?



- a)  $y = x^2 - 18x + 17$
- b)  $y = x^2 - 18x - 15$
- c)  $y = x^2 + 18x + 17$
- d)  $y = x^2 - 18x + 15$

- 8) Find the value of side  $x$



- a)  $x = \frac{9\sqrt{6}}{2}$
- b)  $x = \frac{2\sqrt{6}}{6}$
- c)  $x = \frac{3\sqrt{6}}{2}$
- d)  $x = \frac{9\sqrt{6}}{4}$