Tanner is an Ultimate Frisbee player. He has made 100 throws and recorded how many meters they traveled rounded to the nearest 10 meters. The data he recorded is in the table below.

Assuming the distance Tanner throws the disc continues in the same proportions, which of the following statements are true?

Distance (meters)	Throws
10	4
20	21
30	32
40	35
50	8
Total	100

Choose all answers that apply:

- [ ] A The expected value of Tanner's next 50 disc throws is 2000 meters.
- [ ] B Tanner's next disc throw is expected to travel 32.2 meters.
- [ ] C In the long run, Tanner will throw the disc 40 meters more than 4 times as often as he throws the disc 50 meters.
- [ ] D Tanner's next disc throw is most likely to travel 30 meters.

A patient is sick with a certain infection where the treatment involves taking $\$20$ drug that has a 90% chance of curing the infection. If that drug doesn't work, then the patient takes an $\$80$ drug that is almost guaranteed to cure the infection.

The table below displays the probability distribution of $X =$ the total amount of money a randomly selected patient spends on this treatment plan.

$X =$ total spent	$\$20$	$\$100$
$P(X)$	90%	10%

Given that $\mu_X = \$28$, calculate σ_X.

$\sigma_X =$ [ ] dollars

A roulette wheel has 38 slots, of which 18 are red, 18 are black, and 2 are green. In each round of the game, a ball is tossed in the spinning wheel and lands in a random slot. Suppose we watch 7 rounds of this game, and let R represent the number of rounds where the ball lands in a red slot.

Which of the following would find $P(R = 3)$?

Choose 1 answer:

(A) $\left(\frac{18}{38}\right)^3\left(\frac{20}{38}\right)^4$

(B) $\left(\frac{18}{38}\right)^4\left(\frac{20}{38}\right)^3$

(C) $\binom{38}{7}\left(\frac{18}{38}\right)^3\left(\frac{20}{38}\right)^4$

(D) $\binom{7}{3}\left(\frac{18}{38}\right)^4\left(\frac{20}{38}\right)^3$

(E) $\binom{7}{3}\left(\frac{18}{38}\right)^3\left(\frac{20}{38}\right)^4$

The City of Minneapolis is deciding whether to install a stoplight or a stop sign at a very dangerous intersection. Every time a car goes through the intersection, it either is safe, gets in a minor accident, or gets in a major accident. The stoplight would prevent crashes more often, but they would be more costly if they did occur.

The City of Minneapolis performs 800 simulations of a car going through the intersection with a stoplight and with a stop sign. Once they decide whether to install a stoplight or a stop sign, they expect 4000 cars to travel through the intersection in the next year.

What is the expected damage at this intersection in the next year if the City of Minneapolis installs a stoplight? $\$$ ____

What is the expected damage at this intersection in the next year if the City of Minneapolis installs a stop sign? $\$$ ____

To minimize the expected damage, The City of Minneapolis should install a ____ **.**

(If necessary, round your answers to the nearest dollar.)

The following table shows damage from each type of accident depending on whether the City of Minneapolis installs a stoplight or a stop sign.

	Stoplight	Stop sign
Major accident	$900	$700
Minor accident	$600	$200

The following table shows the results from the traffic simulation.

Car result	Stoplight	Stop sign
Major accident	15	19
Minor accident	24	31
No accident	761	750
Total	800	800