

Two pages, 4 problems, 10 points. Simplify each answer. No calculators.

Problem 1 (1 point). Suppose you are rolling a die for fun. If your last three rolls were 3s, what is the probability that the next roll will also be a 3? Explain.

$\frac{1}{6}$ The previous rolls have no effect on the next roll.

Problem 2 (2 points). Suppose you flip two coins. If they are both heads, you get \$24, otherwise you get \$12. If you repeat this 10 times, how much money do you expect to gain?

The expected value is $\frac{1}{4} \cdot 24 + \frac{3}{4} \cdot 12 = 6 + 9 = 15$.
 both heads other options.

So after 10 times, we should get around \$150 total.

Problem 3 (2 points). You roll a die and flip a coin. What is the probability of rolling a 2 or a 5, and the coin coming up heads?

$$\frac{2}{6} \times \frac{1}{2} = \boxed{\frac{1}{6}}$$

Problem 4 (1 point each). Consider the following temperature data:

Day	1	2	3	4	5	6	7
High Temperature(°C)	2	-7	-7	2	1	-18	-12

(a) What was the maximum temperature?

2

(b) What was the minimum temperature?

-18

(c) What was the median temperature?

-18 -12 -7 -7 1 2 2

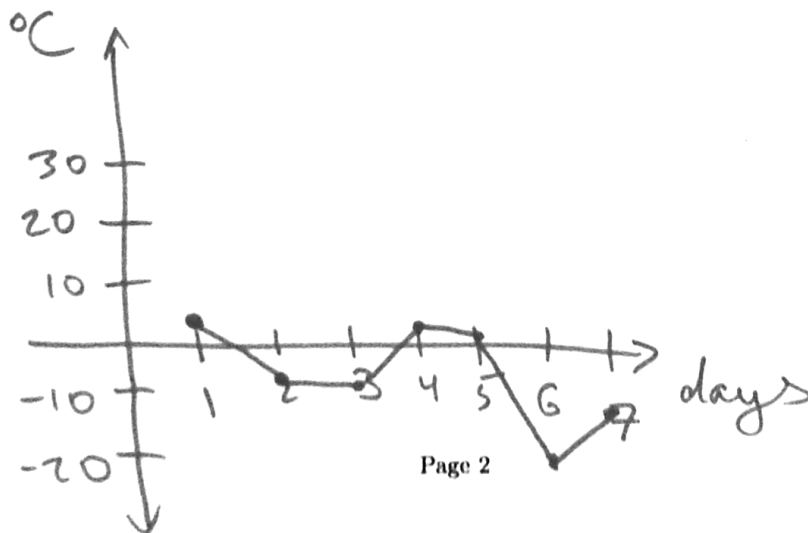
-7.

(d) Water freezes at 0°C. Use a pie chart to show how many days were below freezing.

4 below freezing, 3 above



(e) Graph the temperatures over time (as a line graph). Make sure to label the axes.



10
 9 ...
 8 ..
 7
 6
 5
 4
 3
 2
 1
 0 x x ← no-shows