



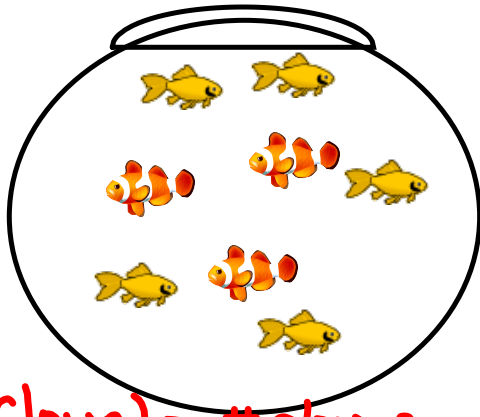
Warm Up

Date: Mar 14 PI day

Ch. 7 Lesson 6

day 2

1)



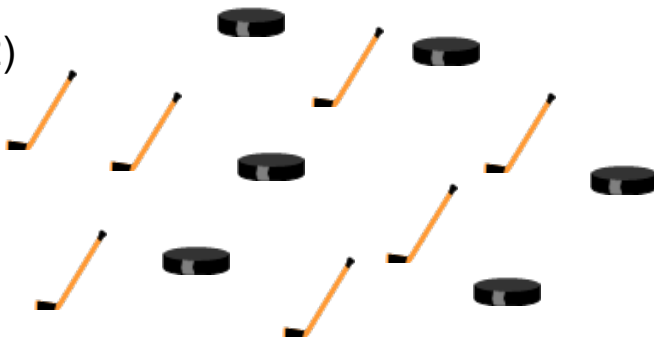
$$P(\text{clown}) = \frac{\# \text{ clowns}}{\text{total fish}} = \frac{3}{8}$$

a) What are the possible outcomes?

yellow fish
clown fish

b) What is the theoretical probability of picking a clown fish?

2)



a) What are the possible outcomes?

puck
or
stick

b) What is the theoretical probability of NOT picking a puck?

$$P(\text{Not a puck}) = \frac{\# \text{ sticks}}{\text{total}} = \frac{7}{13} \quad \text{or} \quad \frac{\# \text{ of Not pucks}}{\text{Total}}$$

Practice



1. A paper bag contains 2 green tiles, 4 yellow tiles, and 1 blue tile. Liz draws a tile without looking.
 - a) List the possible outcomes.
 - b) What is the theoretical probability that the tile is:
 - i) green?
 - ii) yellow?
 - iii) blue?

a) The outcomes are: Green tile, a yellow tile, and a blue tile

b) Total number of tiles is: $2 + 4 + 1 = 7$ so,

i) $P(\text{green}) = \frac{2}{7}$ ii) $P(\text{yellow}) = \frac{4}{7}$ iii) $P(\text{blue}) = \frac{1}{7}$

Handwritten: $P(g) = \frac{\#g}{\text{total}}$

2. There are 13 girls and 17 boys in a Grade 6 class. The teacher puts each student's name into a hat, then draws one name. The student whose name is drawn will be the first to present her or his speech. What is the theoretical probability that a girl will present first?

$13 + 17 = 30$ students

$P(\text{girl}) = \frac{\#g}{\text{total student}}$

$p(\text{girl present}) = \frac{13}{30}$

3. Jade spins the pointer on this spinner.
 - a) List the possible outcomes. Outcomes are landing black, white, red or yellow
 - b) What is the theoretical probability of each outcome?
 - i) The pointer lands on black.
 - ii) The pointer lands on red.
 - iii) The pointer lands on yellow or white.
 - iv) The pointer does not land on yellow.

$P(\text{Black}) = \frac{1}{4}$ $P(\text{red}) = \frac{1}{4}$ $P(\text{Yellow or White}) = \frac{2}{4} = \frac{1}{2}$

Handwritten: $\frac{\#W \text{ or } Y}{\text{total}}$

$P(\text{Not Y}) = \frac{\#R, B, W}{\text{Total}}$

$P(\text{Not Yellow}) = \frac{3}{4}$

4. Shen rolls a die labelled 1 to 6.
 - a) List the possible outcomes.
 - b) What is the probability of rolling a 1? An even number? A number greater than 4?

a) Landing on a 1,2,3,4,5,6, (6 outcomes)

b) $P(\text{roll a 1}) = \frac{1}{6}$ $P(\text{even \#}) = \frac{3}{6} = \frac{1}{2}$ $P(\text{greater than 4}) = \frac{2}{6} = \frac{1}{3}$

5. A jar contains 9 black, 22 red, 26 orange, and 13 green marbles.
 A marble is picked at random. **black , red, orange and green**
- List the possible outcomes.
 - What is the probability of each outcome? $9+22+26+13 = 70$
 - A black marble is picked.
 - A green marble is picked.
 - A red or an orange marble is picked.

$$P(\text{Black picked}) = \frac{\# \text{ black}}{\text{total}} = \frac{9}{70}$$

$$P(\text{Green picked}) = \frac{\# \text{ green}}{\text{total}} = \frac{13}{70}$$

$$P(\text{Green or Orange picked}) = \frac{\# \text{ G and O}}{\text{total}} = \frac{26+13}{70} = \frac{39}{70}$$

6. A letter is chosen at random from each word listed below.
 In each case, what is the probability that the letter chosen is a vowel?
- Yukon
 - Saskatchewan
 - Nunavut
 - Manitoba

$$\text{a) } P(\text{Vowel}) = \frac{\# \text{ vowel}}{\text{total letters}} = \frac{2}{5} \qquad \text{b) } P(\text{Vowel}) = \frac{\# \text{ vowel}}{\text{total letters}} = \frac{4}{12} = \frac{1}{3}$$

$$\text{c) } P(\text{Vowel}) = \frac{\# \text{ vowel}}{\text{total letters}} = \frac{3}{7} \qquad \text{d) } P(\text{Vowel}) = \frac{\# \text{ vowel}}{\text{total letters}} = \frac{4}{8} = \frac{1}{2}$$

7. An object with 10 congruent faces is a regular decahedron.
 Shannon and Joshua roll a decahedron labelled 1 to 10.
 a) List the possible outcomes. **outcomes are 1,2,3,4,5,6,7,8,9,10**

b) What is the probability Shannon rolls an odd number?
 c) Joshua says there is a probability of $\frac{1}{5}$ for rolling a number with a certain digit. What is the digit?

$$\text{b) } p(\text{Odd}) = \frac{\# \text{ odd}}{\text{total}} = \frac{5}{10} = \frac{1}{2}$$

$$\text{c) } \frac{1}{5} = \frac{2}{10} \quad \text{The digit must occur 2 of the 10 possible outcomes.}$$

So the digit is 1; it is in both 1 and 10

8. At a carnival, you can choose one of these wheels to spin.
 To win a prize on the first wheel, the pointer must land on a star.
 To win a prize on the second wheel, the pointer must land on a happy face.
 Which wheel would you choose to spin?
 Use words and numbers to explain your answer.



I would choose the first wheel. The probability of winning a prize on the first wheel is $\frac{2}{8} = \frac{1}{4}$ because there are 2 stars and 8 sectors. The probability of winning a prize on the second wheel is $\frac{2}{5}$ because there is 2 happy face and 5 sectors. $\frac{1}{4}$ is greater than $\frac{2}{5}$ so the first wheel gives me a better chance of winning.

9. This table shows the number of birthdays each month for a Grade 6 class.
 A student is picked at random.
 What is the probability of each event?
 a) The student has a birthday in March.
 b) The student has a birthday in October.
 c) The student has a birthday in June, July, or August.
 d) The student does not have a birthday in December.

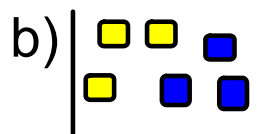
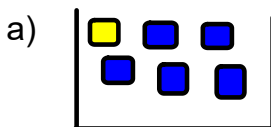
Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Number of Students	2	4	3	1	5	3	2	3	3	1	1	2

total students $2+4+3+1+5+3+2+3+3+1+1+2 = 30$

- a) $P(\text{March bday}) = \frac{\# \text{march}}{\text{total}} = \frac{3}{30} = \frac{1}{10}$
- b) $P(\text{oct bday}) = \frac{\# \text{october}}{\text{total}} = \frac{1}{30}$
- c) $P(\text{June July or Aug bday}) = \frac{\# \text{June} + \# \text{July} + \# \text{Aug}}{\text{total}} = \frac{3+2+3}{30} = \frac{8}{30} = \frac{4}{15}$
- d) $P(\text{Not Dec bday}) = \frac{\# \text{All-Dec}}{\text{total}} = \frac{30-2}{30} = \frac{28}{30} = \frac{14}{15}$

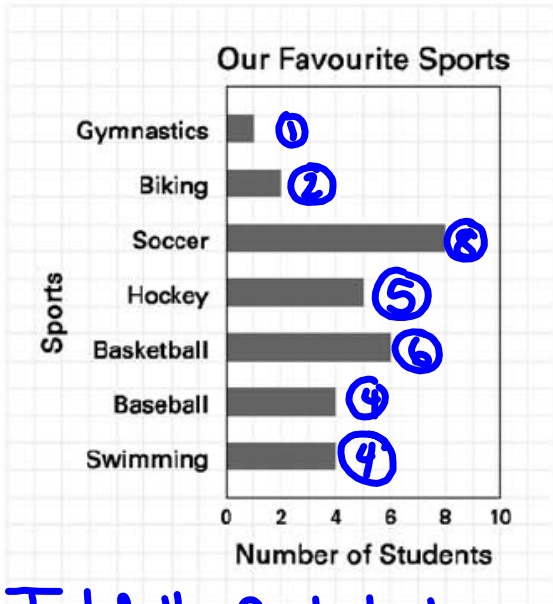


10. A bag contains 6 cubes.
 The cubes are coloured blue and yellow.
 Draw and colour the cubes in the bag for each probability:
 a) The probability of picking a yellow cube is $\frac{1}{6}$.
 b) The probability of picking a blue cube is $\frac{3}{6}$.



You try

Write out the probability statement



Total # of students
 $1 + 2 + 8 + 5 + 6 + 4 + 4 = 30$

1) What is the probability of a teacher picking a student that enjoys biking?

$$P(\text{biking}) = \frac{\# \text{ bikes}}{\text{total students}} = \frac{2}{30} = \frac{1}{15}$$

Reduce Fraction

2) What is the probability of a teacher picking a student that enjoys hockey or basketball?

$$P(\text{H or bask}) = \frac{\# \text{ Hockey, Basket}}{\text{Total}} = \frac{11}{30}$$

3) What is the probability of a teacher NOT picking a student that enjoys baseball?

$$P(\text{Not Baseball}) = \frac{\# \text{ not baseball}}{\text{total}}$$

$$= \frac{26}{30} \div 2$$

$$= \frac{13}{15}$$

Class/Homework

Page 273-275 #4, 5, 6, 7, 8, 9, ~~10~~

Not just the answer. Write the probability statement (Reduce Fractions)

$$P(\text{Favorable}) = \frac{\# \text{favorable}}{\text{total}}$$

Need more practice- Extra Practice Probability

Vowel A E I O U Y

Y y k o n
↑ ↑ ↑

$$P(\text{vowel}) = \frac{\# \text{ of vowels}}{\text{Total letters}} = \frac{3}{5}$$

Extra Practice Probability

Lesson 1: Describing Probabilities

1. Nadine is making bead necklaces. She puts 10 blue, 5 green, 5 yellow, 12 red, and 18 black beads in a bag. She reaches into the bag without looking and pulls out a bead. For each colour of bead, use words and a fraction to describe the probability that it will be picked from the bag.

2. Rogers surveyed her classmates to find their favorite flavor of cookie. Fourteen students chose chocolate chip, 9 chose peanut butter, 2 chose oatmeal, and 1 student does not like any type of cookie. Rogers puts each student's name in a hat. She pulls out a name without looking. What is the probability that he draws the name of someone whose favourite cookie flavour is:
 - a) oatmeal?
 - b) chocolate chip?
 - c) coconut?
 - d) no favourite flavour?

3. Anya rolls an octahedron labelled A, A, A, B, C, C, C, C.

What is the theoretical probability that the octahedron will land on each letter?

4. Eva's penny jar contains 25 pennies from 2004, 32 pennies from 2006, 17 pennies from 2007, and 26 pennies from 2008. She picks a penny from the jar at random.

a) List the possible outcomes.

b) What is the theoretical probability of each outcome?

i) Eva picks a penny from 2007.

ii) Eva picks a penny from an even-numbered year.

iii) Eva picks a penny from a leap year.

5. Yannick is playing a game at a fun fair. Twenty-five small metal boats are floating in a large tub. On the bottom, 20 boats are marked "Too bad," 4 boats are marked "Take another turn," and 1 boat is marked "You win!" Yannick uses a magnet on a stick to pull a boat from the tub. What is the theoretical probability of each outcome?

a) Yannick loses on his first turn.

b) Yannick gets a second turn.

c) Yannick wins on his first turn.

Extra Practice Probability

1. Blue: unlikely; $\frac{10}{50}$ or $\frac{1}{5}$
Green, yellow: unlikely, equally likely; $\frac{5}{50}$ or $\frac{1}{10}$
Red: slightly more likely than blue; $\frac{12}{50}$ or $\frac{6}{25}$
Black: most likely; $\frac{18}{50}$ or $\frac{9}{25}$
2.
 - a) $\frac{2}{26}$ or $\frac{1}{13}$
 - b) $\frac{14}{26}$ or $\frac{7}{13}$
 - c) 0
 - d) $\frac{1}{26}$

Practice



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 - b) What is the theoretical probability that the tile is:
 - i) green?
 - ii) yellow?
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2. There are 13 girls and 17 boys in a Grade 6 class. The teacher puts each student's name into a hat, then draws one name. The student whose name is drawn will be the first to present her or his speech. What is the theoretical probability that a girl will present first?

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