Test May 11 (Friday)

Warm Up Grade 8

May 1, 2018

Probability is the chance of an event happening. It can be given as a fraction or as a percent.

Experimental Probability: the probability of an event calculated from experimental results.
-do out

Theoretical Probability: the number of favourable outcomes written as a fraction of the total number of possible outcomes.

$$P(\text{of Event}) = \frac{\text{\# of favourable outcomes}}{\text{\# of possible outcomes}}$$

Coin < Head / Tail

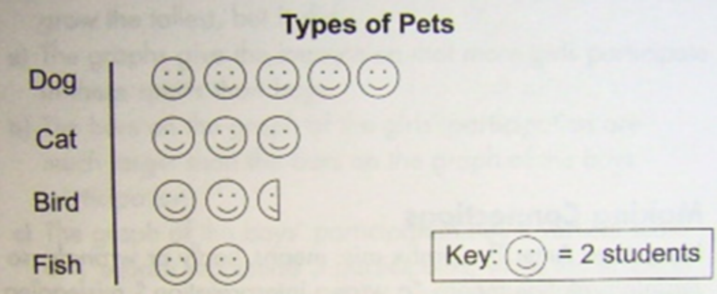
$$P(\text{Head}) = \frac{\text{\# of Head}}{\text{Total outcomes}}$$

$$= \frac{1}{2}$$

$$= 0.50$$

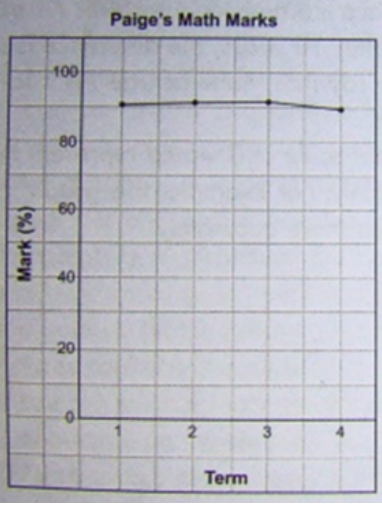
$$= 50\%$$

6. a) Nick's conclusion is incorrect. The bird row appears to be the longest, but if you use the key to count the number of students with each pet, you find that 10 students have dogs, and only 5 students have birds.
   b) I would make each symbol the same size and I would change the symbol to represent a person, not a pet. For example, this graph represents the data more accurately.

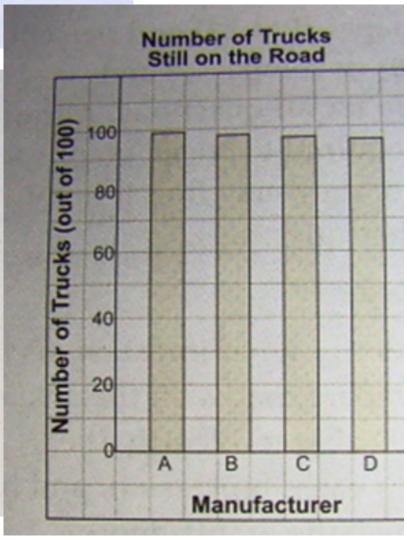


   c) The creator of the graph probably has a bird and/or a fish because the bird row looks longer than all the other rows and the symbol used for each type of pet is a fish.

7. a) Paige's math mark dropped from 94% in the 3rd term to 89% in the 4th term. Since her mark is still almost 90%, she probably shouldn't be very concerned.
   b) The exaggeration occurs because the vertical scale starts at 86%. Starting the vertical scale at 0% would represent the data more accurately. For example, this graph represents the data more accurately.

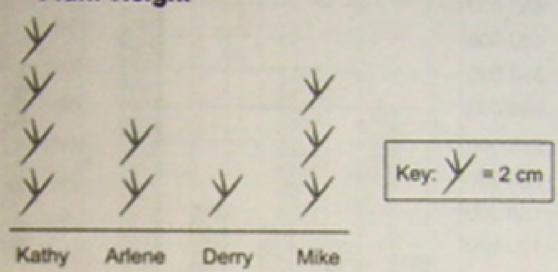


8. a) The graph gives the impression that Manufacturer A builds significantly more long-lasting trucks than manufacturers B, C, or D, more than twice as many compared to Manufacturer C.
   b) B: 97.5 out of 100 trucks; C: 96.5 out of 100 trucks; D: 95.5 out of 100 trucks
   c) No. While there are more of Manufacturer A's trucks still on the road after 10 years, the difference is so small it is hard to say that Manufacturer A's trucks are more dependable.
   d) Starting the vertical scale at 0 would represent the data more accurately. For example, this graph represents the data more accurately.



9. a) Each symbol represents 2 cm of growth. Since Kathy has the most number of symbols, her plant grew the most.
b) The size of each symbol is not the same. The graph makes it seem as though Arlene's plant grew the highest because her bar is tallest.
c) Make each symbol the same size. For example, this graph represents the data more accurately.

Plant Height



d) No. The graph makes it appear that Kathy's plant did not grow the tallest, but it did.

10. a) The graphs give the impression that more girls participate in these sports than boys.
b) The bars on the graph of the girls' participation are much larger than the bars on the graph of the boys' participation.
c) The graph of the boys' participation has a vertical scale of 1 square represents 5 participants, while the graph of the girls' participation has a vertical scale of 1 square represents 2 participants. The graph of the girls' participation has bars that are two squares wide, while the graph of the boys' participation has bars t only one square wide.
d) Both graphs should have the same vertical scale and bar width.
e) A double bar graph would be a better choice to compare the two data sets because then the scale would have to be the same for both boys' and girls' participation.

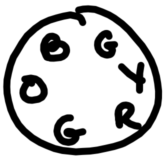
11. a) The 3-dimensional perspective of the graph makes it appear that sales have increased greatly from 2002 to 2007. The graph does not show any scale for sales amounts.
b) The graph should have a vertical scale and be 2-dimensional. It might be better to use a line graph since the data change over time.

12. Student answers will depend on the graph they choose.
a) The graph could create a false impression by not drawing the bars in a bar graph or symbols in a pictograph proportionally. It could start the scale at a number other than 0 or use a very large or small scale. If it is a double bar graph or double line graph, it could use a different scale for each item.
b) The graph might be used to emphasize a similarity or difference.
c) The graphs could be changed so that all symbols or bars are drawn proportionally, the scale starts at 0, and the scale is appropriate for the size of the data.

13. Some graphs are made to exaggerate or reduce differences between data values to support a particular viewpoint. To misrepresent the data, the vertical scale could be too large or small, the vertical axis might start at a number that is not zero, or the size of the bars or pictures could be inconsistent.

14. a) You can tell that Mark spends a greater percent of his allowance on movies than Tina, but you cannot tell if Mark spends more money on movies than Tina since you don't know the amount of each person's allowance.
b) A double bar graph, so that I could compare the actual dollar amounts.

Theoretical Probability is what we will be concentrating on



What is the probability of landing on Green?

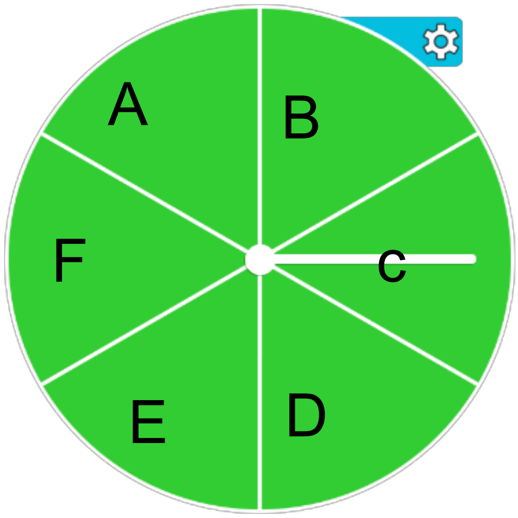
$$P(\text{Green}) = \frac{\#\text{ of green}}{\text{total}}$$

$$= \frac{2}{6}$$

$$= \frac{1}{3}$$

$$= 0.\overline{3}$$

$$= 33\%$$

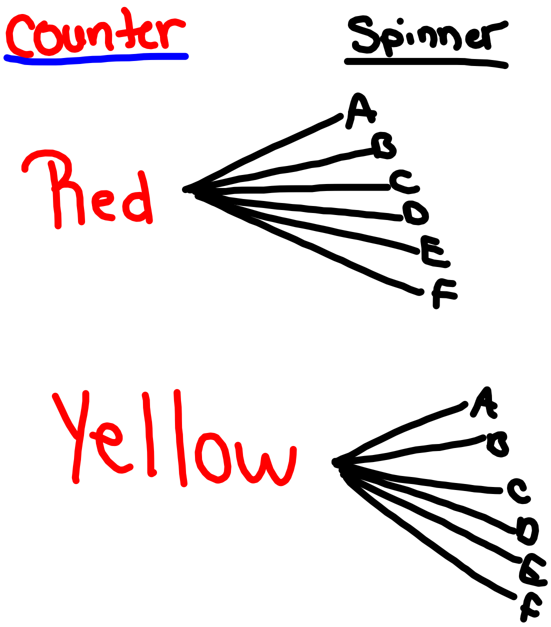


Using a tree diagram and list ALL the possible outcomes of spinning the pointer on this spinner and tossing ONE two-colored counter.

a) What is the probability of landing on F? $P(F) = \frac{\# F}{\# \text{total}}$

b) What is the probability of tossing red? $P(R) = \frac{\# \text{Red}}{\# \text{total}}$

c) What is the probability of landing on F and tossing red?



Outcomes

Red, A
Red, B
Red, C
Red, D
Red, E
Red, F

Yellow, A
Yellow, B
Yellow, C
Yellow, D
Yellow, E
Yellow, F

c) $P(\text{F and Red}) = \frac{\# \text{ F and Red together}}{\text{total outcomes}}$

$= \frac{1}{12}$

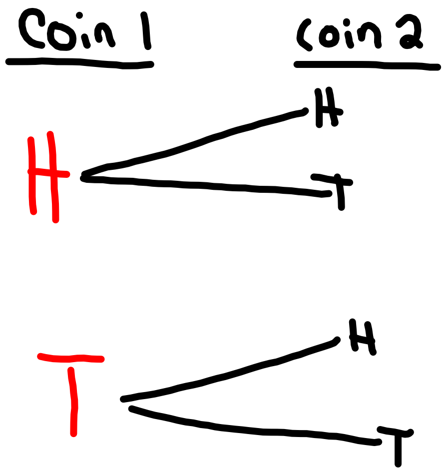
Independent Events: the outcome of one event has no effect on the outcome of another.

Ex: Tossing a coin and rolling a 5 on a die

Dependent Events: the outcome of the second event is affected by the first.

Ex: Selecting a heart from a deck of cards, not replacing the card, and then selecting another heart.


A)Use a Tree Diagram to find all the outcomes of tossing two coins.
B) What is the probability of tossing 1 head and 1 tail?



Outcomes
HH
HT
TH
TT

4 outcomes

$$P(H \text{ and } T) = \frac{\# \text{ of } H \text{ and } T}{\text{total}}$$

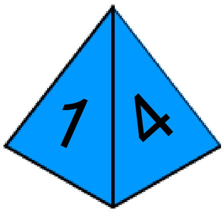
$$= \frac{2}{4}$$

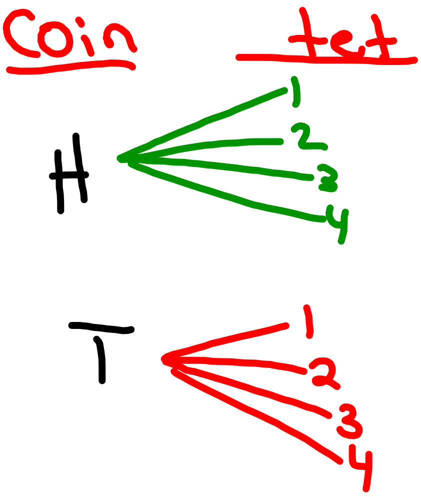
$$= \frac{1}{2}$$

$$= 50\%$$

Use a tree diagram to determine the outcomes for tossing a coin and rolling a tetrahedron labelled 1 to 4.

What is the probability of tossing tails and rolling an even number?



Outcome
H 1
H 2
H 3
H 4
T 1
T 2 ←
T 3
T 4 ←

8 outcomes

$$P(\text{Tails and even \#}) = \frac{\#\text{ tail and even}}{\text{total outcomes}}$$

$$= \frac{2}{8}$$

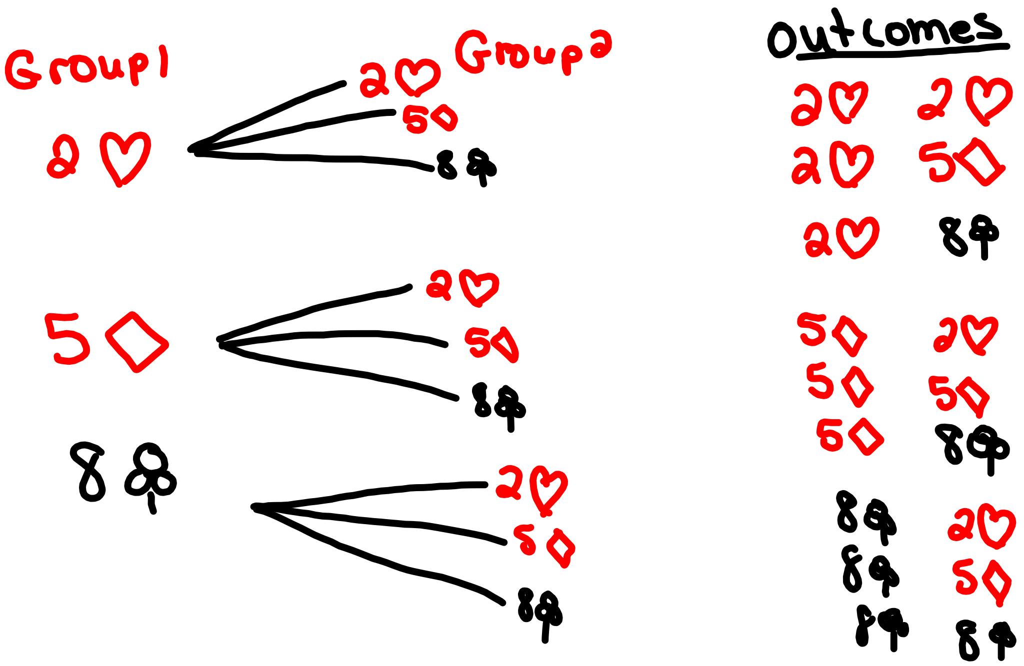
$$= \frac{1}{4}$$

$$= 0.25$$

$$= 25\%$$

Class/Homework

Page 411 #3, #4, #5



Have the students do the Investigate pg. 407
Use this to review Tree Diagrams and Charts

Outcomes
AR
AY
BR
BY
CR
CY
DR
DY
ER
EY
FR
FY

Prob (F) = $\frac{1}{6}$

Prob (red) $\frac{1}{2}$

Prob (F and Red) $\frac{1}{12}$

$\frac{1}{6} \times \frac{1}{2} = \frac{1}{12}$

Pass out and discuss notes

Kelsey H	Kelsey D	Kelsey S	Kelsey C	Sydney H	Sydney D	Sydney S	Sydney C	Outcomes
✓				✓				H H
✓					✓			H D
✓						✓		H S
✓							✓	H C
	✓			✓				D H
	✓				✓			D D
	✓					✓		D S
	✓						✓	D C
		✓		✓				S H
		✓			✓			S D
		✓				✓		S S
		✓					✓	S C
			✓	✓				C H
			✓		✓			C D
			✓			✓		C S
			✓				✓	C C

Prob (Kelsey - spade) $= \frac{1}{4}$

Prob (Sidney - heart) $= \frac{1}{4}$

Prob (Kelsey spade and Sidney heart) $= \frac{1}{16}$

$=$ Prob (Kelsey-spade) $\times$ Prob (Sidney-heart)

$= \frac{1}{4} \times \frac{1}{4}$

$= \frac{1}{16}$

Probability

Probability is the chance of an event happening. It can be given as a fraction or as a percent.

Impossible	Unlikely	Equally Likely	Likely	Certain
0	1/4	1/2	3/4	1

Theoretical Probability is when you calculate the probability using the number of favorable outcomes and the number of possible outcomes.

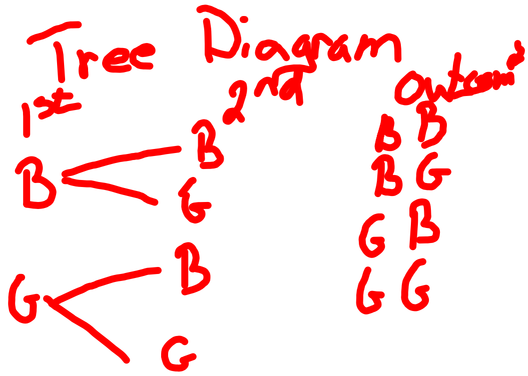
$$\text{Theoretical Probability} = \frac{\text{Number of Favorable Outcomes}}{\text{Number of Possible Outcomes}}$$

Prob (rolling a 6 on a die) = 1/6

Experimental Probability is when you do an experiment to determine the probability. With experimental probability, you would roll the die 20 times and see how many times you roll a 6.

You can use a chart or a tree diagram to help you figure out the number of possible outcomes.

Find the possible outcomes for having 2 children



4 possible outcomes

Prob (2 girls) = $\frac{1}{4}$ or 25%

Table

Possible	First Boy	First Girl	Second Boy	Second Girl	
1	✓		✓		B B
2	✓			✓	B G
3		✓	✓		G B
4		✓		✓	G G
5					
6					
7					
8					

||||

$\frac{4}{20}$

Independent Events

Two events are Independent events when one event does not affect the other.

For example the probability of rolling a 6 is 1/6
the probability of flipping a head is 1/2
What is the probability of rolling a 6 and flipping a head?

Die	Coin	Outcomes
1	H	1H
	T	1T
2	H	2H
	T	2T
3	H	3H
	T	3T
4	H	4H
	T	4T
5	H	5H
	T	5T
6	H	6H
	T	6T

Prob (6) = 1/6 Prob (H) = 1/2 Prob(6 and H) = 1/12

$$\frac{1}{6} \times \frac{1}{2} = \frac{1}{12}$$

It is often written as: P(A and B) = P(A) x P(B)

So in the example above, the Prob(6 and Head) = Prob(6) x Prob (head)

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

$$= \frac{1}{12}$$

Discuss Examples 1 and 2 on pages 408-410

Homework pg .410 #1-6 (maybe 1-9, depending on time)