

**Answers**

1. a) Commutative    b) Associative    c) Distributive

2. a) Smaller    b) Any number greater than 1  
   b) Any number less than 1

3. a)  $-200$                       b) 25

4. a) 27                              b) 5

5. 1.5 cm/second

2/24

No jokers

52 cards

4 Suites:

Diamond, Spades, Hearts, Clubs

1  
A

2

3

4

5

6

7

8

9

10

J

Q

K

Face Cards



A 2 3 4 5 6 7 8 9 10 J Q K

23. PICK A CARD, ANY CARD

What is the probability of picking the following cards from the deck? Write your response as a fraction, as a decimal, and as a percent.



Exact

- a. P(black)? 50%    b. P(club)? 25%

c. If you drew a card from the deck and then replaced it, and if you repeated this 100 times, about how many times would you expect to draw a face card (king, queen, or jack)? Explain your reasoning.

Estimate

$$\frac{12}{50} \text{ is about } \frac{24}{100}$$

estimates  
24%  
23%

exact %  
Thanks Max! 23.08%

A 2 3 4 5 6 7 8 9 10 J Q K

- 5-24. Sometimes it is easier to figure out the probability that something will *not* happen than the probability that it will happen. When finding the probability that something will not happen, you are finding the probability of the **complement**. Everything in the sample space that is not in the event is in the complement. Write your probabilities as a **fraction**.

- a. What is the probability you *do not* get a club, written  $P(\text{not club})$ ?  $\frac{39}{52} = \frac{3}{4}$
- b. What is  $P(\text{not face card})$ ?  $\frac{40}{52}$
- c. What would happen to the probability of getting an ace on a second draw if you draw an ace on the first draw and do not return it to the deck? Justify your answer.

$$\frac{3}{51}$$