

C O D E
L I N E

DIRECTIONS:

Figure out the answer to any question below. Then find your answer in the coded line at the bottom of the page.

Each time the answer appears in the code, write the letter of that question above it.

KEEP WORKING AND YOU WILL DECODE THE LINE.

- (A) How many arrangements of the letters M, A, T, and H are possible if each letter can be used only once in each arrangement? $4 \cdot 3 \cdot 2 \cdot 1 = 24$
- (S) Six people are to be seated in a row of six chairs. How many different seating arrangements are possible? $6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1 = 720$
- (D) There are 3 roads connecting Towns A and B, and 4 roads connecting Towns B and C. How many different routes are there from Town A to Town C? $3 \cdot 4 = 12$
- (O) The GT Dragger offers 5 different engines, 4 different paint jobs, and 2 different radios. How many different "packages" are possible? $5 \cdot 4 \cdot 2 = 40$
- (I) How many different batting orders are possible for the 9 men on a baseball team? $9! = 362,880$
- (V) Orgo has 5 pairs of pants, 6 sport shirts, and 3 belts. How many different outfits can he make using these items? $5 \cdot 6 \cdot 3 = 90$
- (L) How many different 2-letter arrangements can be selected from the set {S,H,A,R,K}? $5 \cdot 4 = 20$ $5P_2$
- (P) How many 3-letter arrangements are possible using the 26 letters of the alphabet if no letter can be used more than once? $26 \cdot 25 \cdot 24 = 15,600$ $26P_3$
- (R) If a school offers 9 different subjects, how many different schedules of 5 classes are possible? $9P_5 = 15,120$
- (C) In how many different ways can a president, vice president, and secretary be elected from a class of 22 students? $22P_3 = 9,240$
- (E) How many different 4-digit numerals are there? (Hint: zero cannot be used as the first digit.) $9 \cdot 10 \cdot 10 \cdot 10 = 9,000$

TITLE: BIG DRIPS

I	C	I	C	L	E	S	A	R	E
362,880	9240	362,880	9240	20	9000	720	24	15,120	9000
E	A	V	E	S	D	R	O	P	P
9000	24	90	9000	720	12	15,120	40	15,600	15,600
								9000	15,120
									720

What Did The Girl Rock Say To The Boy Rock?

Find the answer to any question below in the code key. Notice the letter next to it. Print this letter in the box at the bottom of the page that contains the problem number. Keep working and you will discover the answer to the title question.

① If a coin is tossed, what is the probability of getting a head? $\frac{1}{2}$

② If a coin is tossed, what is the probability of getting a tail? $\frac{1}{2}$

③ Suppose a coin is tossed 100 times. About how many times would you expect to get heads? 50

Suppose you roll a regular 6-faced die. What is the probability of rolling:

④ a 6? $\frac{1}{6}$ ⑤ a 2? $\frac{1}{6}$ ⑥ a 4? $\frac{1}{6}$

⑦ Suppose you roll a 6-faced die 90 times. About how many times would you expect to get a 5? $90 \cdot \frac{1}{6} = 15$

Suppose a jar contains 5 red marbles, 4 white marbles, and 3 blue marbles. If a marble is drawn at random from the jar, what is the probability that it is: 12 marbles

⑧ red? $\frac{5}{12}$ ⑨ white? $\frac{4}{12} = \frac{1}{3}$ ⑩ blue? $\frac{3}{12} = \frac{1}{4}$

A spinner is pictured at the right. If the arrow is spun, what is the probability that the spinner lands on:

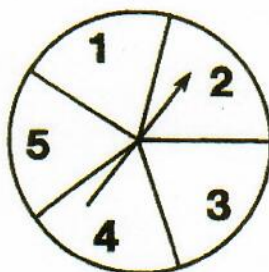
⑪ 2? $\frac{1}{5}$

⑫ 3? $\frac{1}{5}$

⑬ 5? $\frac{1}{5}$

⑭ an even number? $\frac{2}{5}$

⑮ a number less than 3? $\frac{2}{5}$



⑯ Suppose the arrow is spun 50 times. About how many times would you expect the spinner to land on an odd number? $\frac{3}{5} \cdot 50 = \frac{150}{5} = 30$

CODE KEY	
$\frac{5}{12}$	R
$\frac{1}{2}$	T
30	D
$\frac{1}{4}$	I
50	O
$\frac{2}{5}$	B
15	A
$\frac{1}{3}$	U
$\frac{1}{6}$	E
$\frac{1}{5}$	L

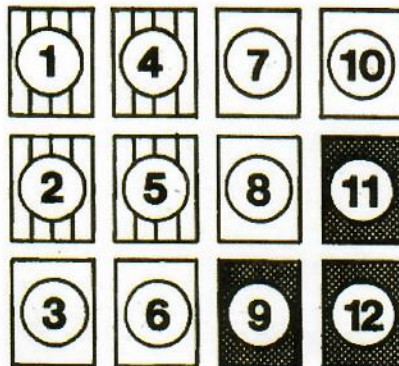
14 B 5 E 7 A 13 L 10 I 2 T 1 T 11 L 4 E 15 B 3 O 9 U 12 L 16 D 6 E 8 R

Why Are Oysters Greedy?

Find the answer to any question below in the boxes at the bottom of the page. Write the letter of that question in the box above its correct answer. Keep working and you will discover the answer to the title question.

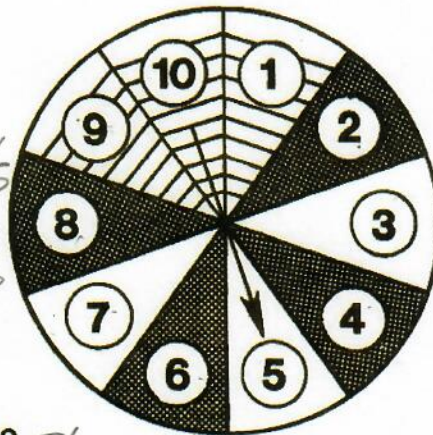
Suppose that a card is drawn at random from the 12 cards shown at the right. What is the probability that the card is:

- (E) striped? $4/12 = 1/3$
- (T) shaded? $3/12 = 1/4$
- (I) white? $5/12$
- (E) numbered 10? $1/12$
- (L) either striped or shaded? $7/12$
- (E) either white or striped? $9/12 = 3/4$
- (S) either white or numbered 5? $6/12 = 1/2$
- (R) either numbered 3 or numbered 9? $2/12 = 1/6$



A spinner is shown at the right. If the arrow is spun, what is the probability that it will stop on a region that is:

- (H) striped? $3/10$
- (L) either white or shaded? $7/10$
- (A) either striped or numbered 7? $4/10 = 2/5$
- (Y) either numbered 6 or numbered 3? $2/10 = 1/5$
- (S) numbered 4? $1/10$
- (H) not numbered 4? $9/10$
- (F) not shaded? $6/10 = 3/5$
- (H) either striped or shaded or numbered 7? $8/10 = 4/5$



T H E Y A R E S H E L L F I S H															
$\frac{1}{4}$	$\frac{3}{10}$	$\frac{1}{12}$	$\frac{1}{5}$	$\frac{2}{5}$	$\frac{1}{6}$	$\frac{3}{4}$	$\frac{1}{10}$	$\frac{4}{5}$	$\frac{1}{3}$	$\frac{7}{10}$	$\frac{7}{12}$	$\frac{3}{5}$	$\frac{5}{12}$	$\frac{1}{2}$	$\frac{9}{10}$