

**GRADE 12 ESSENTIAL  
UNIT A – PROBLEM SOLVING  
MAKE AN ORGANIZED LIST**

Name: \_\_\_\_\_

Date: \_\_\_\_\_

*This will be important when we  
study Probability!*

## What Train Do Pigs Ride?

### Instructions

**YOU WILL NEED SEPARATE BLANK PAPER TO SOLVE THESE. ONE PAGE IS ATTACHED**

For each exercise, write all the possibilities for the situation in an organized list. Then answer the question and circle your answer in the answer column.

**When you finish**, write the letters in order from the letter of the smallest correct answer to the letter of the largest correct answer.



### Answers

Letter of smallest correct answer ⇒ 

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 ⇐ Letter of largest correct answer

- 1 A radio disk jockey has chosen the next 3 songs he will play, but he hasn't decided in what order to play them. How many choices does he have?
  
- 2 At Micron Middle School, each student must take two of these classes: art, music, keyboarding, cooking, or shop. How many different combinations does the student have from which to choose?
  
- 3 Susan bought 2 skirts, 4 blouses, and 2 sweaters to wear as different outfits. How many different combinations can she make that include a skirt, a blouse, and a sweater? (*HINT: Call the skirts A and B; the blouses 1, 2, 3, and 4; the sweaters X and Y*)

- (G) 7
- (A) 16
- (L) 11
- (M) 9
- (O) 20
- (A) 6
- (N) 15
- (C) 18
- (T) 10
- (K) 24
- (H) 4
- (S) 30
- (R) 13
- (P) 17

**DO THE PUZZLE!** That lets you know if you get the correct answers

- 4 There are 3 trombone players and 3 saxophone players in the school band. The director needs 2 trombone players and 1 saxophone player for a special performance. How many different choices does the director have?
- 5 Wilbur has trophies in football, soccer, bowling, and tennis. He lines them up on a shelf in his room. How many different arrangements of the 4 trophies are possible? (*This one is crazy!*)
- 6 The telephone operator has told Jed to deposit 60 cents. In how many ways can he do this using nickels, dimes, and quarters?
- 7 A student must answer any 3 of the 4 essay questions on a social studies test. How many different selections of questions can be made?
- 8 A computer game lets you create funny animals by combining the head of one animal, the body of another animal, and the legs of a third animal. You can choose the head of an elephant, gorilla, or lion; the body of a horse or ostrich; and the legs of a camel, duck, or pig. How many different animals can be made?

H A M T R A C K

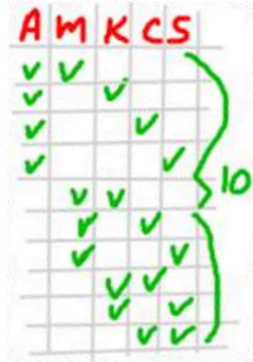
You will learn in probability that a **combination** is an arrangement where the order does not matter!

**DO THE PUZZLE!** That lets you know if you get the correct answers

MrF

BLANK PAPER TO SOLVE THE PROBLEMS (ATTACH OTHERS IF NECESSARY)

Question 2:



Same ←      ↘ Same as AK

AM	<del>MA</del>	<del>KA</del>	
AK	MK	<del>KA</del>	
AC	MC	KC	CS
AS	MS	KS	

4 + 3 + 2 + 1  
10 possible combinations of course

Question 5:

{F, S, B, T} in some order    ?    ?    ?    ?

FS      B → FS →    T → BFS    T → FBS    T → FSB  
 SF      B → SF →    T → BSF    T → SBF    T → SFB  
 JUST 2

Nasty

TBFS	TFBS	TFSB
BTFS	FTBS	FTSB
BFTS	FBTS	FSTB
BFS T	FBST	FSTB

etc

and 12 more where the F & S switch places

(24 Total)

DO THE PUZZLE! That lets you know if you get the correct answers