

Much Ado About Mathematics

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Much Ado About Mathematics

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Presented by: The Mathematics Department, Garrison Junior High School,
Baltimore, Maryland

THE PLAY begins with an introductory speech delivered before the curtain.

There are five scenes and an epilogue so arranged that there is continuous action. The first scene is a living room, the third a shop room in a school and the fifth a radio broadcasting studio.

The second and fourth scenes are played before the curtain and provide ample time for the shifting of scenery behind the curtain. The epilogue takes place before the curtain.

There are two characters who appear in each scene, Robert, the boy, and the Wishing Genie. All other characters appear in but one scene.

INTRODUCTORY SPEECH

We did not know what to call our performance so we borrowed three words from the title of the play, "Much Ado about Nothing" by William Shakespeare. He won't mind because he's dead, you know. We are calling this, "Much Ado about Mathematics."

The first scene takes place in the living room of the Garrison family. The next scenes skip blithely about our city. A magic hill top, a school shop, a city street and a radio studio will follow each other in quick succession.

When the curtain opens you will see John Garrison, doing something intensely interesting,—his algebra homework.

SCENE I.

The living room in the Garrison home.

CHARACTERS

1. JOHN GARRISON, *the younger son.*
2. MRS. GARRISON, *his mother.*
3. JOHN GARRISON, SR., *his father.*

4. TOM GARRISON, *his older brother.*
5. BILL, *a friend.*
6. CARRIE, *the colored maid.*
7. THE WISHING GENIE.

SCENE I

As the curtain rises John is seen working at a desk

JOHN: That doesn't work either.

(He rises and crumples paper.)

I just can't get that problem.

(He hurls paper into waste basket, misses it and walks to retrieve it. On the way he spies a bow and arrow and begins fooling with it.)

If I let go, I could shoot that algebra right off the table.

(He puts down the bow and walks back toward the desk.)

Maybe if I read it out loud, I can work it.

(He reads.)

"James, Charles and Allen together bought 70 defense stamps. James bought 4 more than twice as many as Allen. Charles bought 6 less than three times as many as Allen. How many stamps were bought by each?"

Let's see now. I'll let x equal somebody. Who? I tried Charles. It didn't work. Suppose I let x equal James. No. I tried that before. Well, here goes. Let x equal Allen's stamps.

$2x$ plus 4 equals James.

(He gets up again and starts to walk from desk.)

Gee whiz, I forgot Charlie.

(He leans forward and writes.)

$3x$ minus 6 equals Charlie, old boy.

Now what? I don't know. Who cares anyway as long as they buy the stamps.

(He walks to the window.)

Saturday afternoon. And here I sit fooling with X's and stamps. I wish I lived in a world that never heard of mathematics.

(Lights go out. Noise like thunder is heard.)

What's that? A blitz?

(Lights come on almost immediately and the Genie stands before John.)

Why, why,—who are you? The man from Mars?

GENIE: I am the Wishing Genie.

JOHN: Stop kidding. Genies went out of date when Aladdin lost his lamp.

GENIE: You may think so. Then, how do you think I got here?

JOHN: That's easy. You walked in.

GENIE: And who darkened the bright sunlight for my entrance?

JOHN: Oh, I guess a storm is coming up.

GENIE: Look. *(He points to window)* Does it look like a storm?

JOHN: *(Going to window)* No. It's bright. *(John turns to Genie.)*

No kidding now, old man, why did you come here? Are you a peddler?

GENIE: I came in answer to your wish.

JOHN: What wish?

GENIE: Yours. You wished that you might live in a world where there was no mathematics.

JOHN: Now, don't tell me that you are going to grant my wish?

GENIE: Yes. I am.

JOHN: You are? Wow! That's great.

GENIE: Of course, there are certain conditions.

JOHN: Conditions?

GENIE: If I grant your wish you must promise not to make use of mathematics or anything that owes its development to mathematics.

JOHN: That's easy.

(Walks to table and places hand on algebra.) I solemnly promise, swear, affirm, *(Rubs head)* and vow *(Turns ironically to Genie)*. Is that strong enough? . . . that I shall deny myself the pleasure of your company from this time forth and forevermore.

GENIE: You are ready to give up algebra.

Are you then willing to live in a world without any mathematics?

JOHN: No Mathematics! I promise. *(Holds up right hand.)* But, Genie? old dear, do not think I believe in you.

GENIE: Getting scared? Are you sport enough to go on with this bargain?

JOHN: Sure. I love sport. I promise I'll play your game.

GENIE: Good. Well then, here are the conditions. I shall be with you all the time. I shall be invisible to everyone but you. See this. *(He shows a metal cricket to John and clicks it.)* Whenever you are about to violate your promise, you will hear this.

JOHN: This is going to be fun. *(He walks to a chair to sit down.)*

GENIE: Click. Click. *(John jumps.)* You must not sit on a chair. See. *(Grasping chair and turning it.)* This chair is comfortable and well-balanced on four legs because it was measured. Geometry helped to build it.

JOHN: No chairs! Well. *(He sits on floor.)* this suits me. I always did have a yen for the oriental style of resting. I guess I'll brew a cup of tea. *(Mimics tea making and pouring and turning to Genie.)* Have a cup of tea, Rajah Genie.

GENIE: You are being very frivolous.

JOHN: Why not? It's a game, isn't it?

GENIE: No. I do not think so.

JOHN: Well now, let's talk. Mathematics didn't invent speech, or did it?

GENIE: No. You may converse on any subject but the subject must not be connected with mathematics in any way.

JOHN: *(Jumps up and goes to radio.)* Better still, let's listen to a speech on the radio. There's a game at Oriole Park and I want to know who's pitching.

GENIE: "Click. Click." You cannot turn on the radio. The dial has numbers.

JOHN: I'll close my eyes and get my station without your numbers.

GENIE: Stop! Do not touch it. That radio was made possible by engineers who had to employ mathematics.

JOHN: O.K. That's out. No chairs. No radio. Then let's talk about baseball.

GENIE: I'm afraid we can't. (*He takes a baseball from his pocket.*) This, as you can see, is a geometrical figure, a sphere. The diamond on which the game is played is measured. You keep score with the numbers of arithmetic.

JOHN: All right. No chairs. No radio. No baseball.

(*A call, "Yeah John," is heard back stage and Bill enters.*)

BILL: Say, come on. We're late.

(*Bill has a ball in his hand. He throws it to John, who is about to catch it, when the Genie sounds the cricket. John hastily drops the ball.*)

What's wrong, Butter-fingers?

JOHN: Can't a fellow miss once?

BILL: Skip it. Say aren't you going with us?

JOHN: I'm afraid I can't. I'm playing another game today.

BILL: Aw! Come on. The game's going to be a hot one. Sandy Gilmore, that semi-pro is going to pitch.

JOHN: He is! Gee whiz! (*He looks at Genie, who shakes head.*) Sorry, Bill, Not today.

BILL: Who'll we get to play third?

JOHN: Get Josh. He's better than I am, anyway.

(*A shrill whistle sounds back stage.*)

BILL: That's Josh now. Well, if you can't go, so long. (*Exit.*)

JOHN: So long. (*He goes to window to watch the boys.*)

GENIE: Too bad. No playing of baseball.

JOHN: Oh, well! I'm not such a big shot at that game.

GENIE: No!

JOHN: Now, let me see. What can I do? I have it. I can go swimming. The fish don't know mathematics.

GENIE: I agree with you there. You may swim but you cannot enter any of the competitive sports in water.

JOHN: This is getting more interesting. I can walk. I can sit on the ground. I can swim like a fish. And . . . dance.

(*He begins a dance.*)

GENIE: (*Click, click.*) No dancing (*Genie waltzes and counts one, two, three, one, two, three.*) See, John, we count.

JOHN: All right. I don't care. The girls walk all over my feet any way.

(*He spies the cookie jar and takes one.*)

Ha! Genie, I guess I got you now! I can eat these.

GENIE: Maybe.

JOHN: What do you mean, maybe! Carrie made these and I bet she never saw the inside of a math book.

GENIE: Call her in and ask her if she measured anything.

(*John calls, "Carrie, come here." Carrie enters.*)

CARRIE: What you all want?

JOHN: Carrie, did you make these?

CARRIE: Shore I did. It's a wonder der is any mohr lef wit you in dis yer room.

JOHN: Did you measure anything you put in them?

CARRIE: Did I? How you thinks I cook. I used one and half cups sugar, three quarter cup o milk, a hunk o butter, bout quarter pound, three eggs—

JOHN: That's enough, Carrie. I didn't think you knew so much arithmetic.

CARRIE: Rithmetic! Corse I knows rithmetic. How you thinks I cook?

JOHN: Well, don't get mad, Carrie.

CARRIE: Say, is dat all you wanted?

JOHN: Yes.

CARRIE: Lan sakes! You think I ain't got nothin to do but answer foolish questions. (*Exits.*)

(*John carries cookie back to jar.*)

JOHN: No cookies. So what do I eat?

GENIE: There's a nice apple tree in the garden.

JOHN: So I can go out in the garden and eat—nice green apples. This game is getting wild. Guess I better go out West with the Indians.

(*John grabs the bow and arrow, sings "Come let's play we're Indians" and grabs the Genie.*)

Come on, Big Chief Genie.

GENIE: Stop! I'll have no such disrespect. I think it is time to make you realize

how serious your promise to live in a world without mathematics is.

Let there be darkness!

(The lights go off. John slips behind a screen and quickly throws a baggy costume over his street clothes. He removes his shoes.)

GENIE: *(While John is changing, Genie speaks to audience.)* It is time to make this mortal realize he is not playing a game. I'll show him how he would look in a world without mathematics. His suit is measured and tailored. He must not wear it.

Ab bra ca da bra! Ab bra ca da bra!,
Punishment now to him I'll mete.

Change his clothes and bare his feet.

Ab bra ca da bra! Ab bra ca da bra!

(Turns back to audience and faces rear of stage.)

Let there be light.

(Lights go on, revealing John in his costume.)

JOHN: What, what,—What have you done to me?

GENIE: Dressed you like a barbarian who lives with no mathematics.

JOHN: This is awful. I can't see anybody like this.

GENIE: You must.

(The bell rings.)

There's your mother. Let her in.

JOHN: *(Exits.)* What a mess! *(Reenters with his mother.)*

MOTHER: Will you tell me what you're doing dressed like a savage? And where are your shoes?

JOHN: Mother, doesn't this make a good masquerade suit?

(He grabs bow and arrow, posing.)

MOTHER: It's awful. *(John now goes to the table where his mother has deposited a bag of groceries.)*

JOHN: You seem to have got a lot for your ration stamps, Mother.

MOTHER: Yes, because I planned my shopping ahead of time. You never saw such a scramble with these ration stamps. Do you know that Mrs. Smith on Barrington Rd.? Well, she had 7 cans in her basket and she only had enough stamps for 4. Was her face red when the clerk took them

away from her! Serves her right. Why doesn't she learn to count!

JOHN: She better had.

MOTHER: I better get this stuff out to the kitchen. John, call Carrie.

(John calls and Carrie enters.)

CARRIE: For lams sake, John. What's you look like? I declare you looks worser than I does. What you want, Mis Garrison?

(Carrie continues to stare at John and taps her head.)

MOTHER: Carrie, take these out. John, is your father in?

(The door bell rings.)

JOHN: There he is now. I'll let him in.

MOTHER: Yes, let him in and then change those awful clothes.

(Mother exits toward kitchen while John exits at other side. John's father enters followed by John.)

FATHER: Am I in the right place? Are you my son?

JOHN: You mean this. *(Pointing to clothes.)* Just an idea for a comfortable summer costume.

FATHER: You better take it off before your mother sees you.

(He picks up the paper.)

H'm. Look at this!

JOHN: What is it?

FATHER: A picture of Bill Donovan, an old college mate of mine.

JOHN: What's he done?

FATHER: He's promoted to Lt. Col. of the Air Forces in the Solomons. I knew he was going places. Best engineer student in our class. That fellow was a wizard in mathematics.

JOHN: Gee! I wish I were in the Air Corps.

FATHER: Grow up first.

(He takes the brief case, which he carried as he entered and starts toward exit.)

JOHN: Aren't you going to play golf this afternoon? I thought I could caddy for you.

FATHER: No. I have some work to do. Those new clerks at the bank have snarled up these accounts. I'm going out to the

back porch and untangle their additions and subtractions.

(As he nears the exit he turns to John.)

I suppose your mother is out back. And, speaking of mother, you better change that costume of yours.

GENIE: Too bad your father has to waste a good afternoon correcting those mathematical errors of other folks.

JOHN: Yes, it is. Father should make them do it. They should not leave a job before it is done right.

GENIE: My sentiments exactly. Here comes your brother.

(The genie looks out the window.)

JOHN: Do you know him?

GENIE: I know everybody. I even know he works in one of the largest air-plane factories in the country.

JOHN: He's a test pilot. That's what I'm going to be.

GENIE: Aren't you going to let him in?

JOHN: He has a key.

(Enter Tom.)

TOM: Well, for the love of—Have I landed in the South Seas!

JOHN: What's wrong? Don't you like this outfit?

TOM: Are you trying to design a suit for a scarecrow?

(Tom begins looking for his racket.)

Say, I thought you were playing ball this afternoon.

(Tom still searches.)

JOHN: No, I changed my mind.

(Genie steps up to John and whispers to him.)

Tom, do you need much math to qualify as an air pilot?

TOM: Stop being funny, kid. The more math you know, the higher up you can go and I don't mean up in the air.

JOHN: Like Bill Donovan?

TOM: You said it. Say, have you seen my racket?

JOHN: Out in the closet in the hall.

TOM: Guess I'll go out back and see mother.

JOHN: Where are you going to play tennis? Jud's?

TOM: Yes. Want to come along?

GENIE: Click, Click.

JOHN: Nope.

GENIE: Sorry you made that bargain?

JOHN: I am a fool, sir. A big fool.

GENIE: That's the first time you have been respectful to me since I came to grant your wish.

JOHN: Oh! That awful wish! And that promise I made! Won't you release me from it?

GENIE: No. You are only worried about your clothes.

JOHN: No, I'm not. Can't you see I realize what a boob I've been?

GENIE: Realize it enough to sit down and work that problem you gave up?

JOHN: Oh, yes sir, yes sir!

(John sits at desk and works.)

TOM: *(Entering.)* Mother says you're to put on civilized clothes.

(Tom exits.)

JOHN: What do you think I'm doing? Oh! All right.

(Genie wanders to radio and switches the dial.)

VOICE OF RADIO: This is station, WEF. Attention, young men. Uncle Sam needs You. Have you had any technical training? Have you had any college course in mathematics? If so, go to your nearest recruiting station and volunteer. Go! Now!

(The genie turns off radio.)

JOHN: Eureka! It checks. I got it, Genie. Quick sir, change my clothes.

(Genie takes the paper and looks at it.)

GENIE: Yes, you have it.

JOHN: Come on, change my clothes.

GENIE: Very well. But, remember I have not released you from your promise. We are going places.

Let there be darkness. *(Lights out.)*

(John goes behind the screen and throws off costume.)

Ab bra ca da bra! Ab bra ca da bra!

Back with his measured and tailored suit.

(Lights.)

JOHN: Thank you, sir. But, you forgot my shoes.

(*Carrie enters, carrying John's shoes.*)

CARRIE: Your ma found dese under de apple tree and says you should put them on.

(*John sits and puts on shoes.*)

What is wrong wit you? Ain't you feeling good?

JOHN: Never felt better.

(*Carrie exits, shaking her head.*)

GENIE: Come, John, we must be on our way.

Curtain.

SCENE 2.

SCENE: *Before the curtain.*

CHARACTERS.

1. JOHN GARRISON.
 2. THE WISHING GENIE.
 3. MASTER OF MATHEMATICS. *Dressed in cap and gown.*
 4. ARITHMETIC GIRLS. *Dressed in white play suits.*
 5. GEOMETRY GIRLS (2). *One dressed in white, with plane figures covering dress; she may carry two solids. The other dressed in white with a protractor as a head piece; she may carry a carpenter's square.*
 6. ALGEBRA GIRL. *She carries a scale on which cubes are placed. These represent numbers and x.*
 7. TRIGONOMETRY BOY. *Dressed in surveyor's costume. Carries sextant.*
 8. CALCULUS BOY. *Ordinary dress or soldier's uniform. Carries a large poster with a diagram of a problem.*
 9. STATISTICS GIRL. *Ordinary dress. Carries a large notebook.*
- Soft music.*

JOHN: Do you hear music?

GENIE: Yes. It is a signal.

JOHN: Signal? Of what?

GENIE: I have asked some of the greatest forces in the development of our civilization to meet you.

(*Enter Master of Mathematics.*)

MASTER: I received your message and here I am. (*Shakes hand of genie.*) Ha!

(*spying John*) Another mortal, come for enlightenment.

GENIE: Meet John Garrison.

MASTER: Delighted.

JOHN: But, who are you?

MASTER: I am the science of counting and measuring, The Master of Mathematics. Without me no other science can go very far. I want you to meet one of my branches.

(*He claps his hands. The ten girls enter. After they are in and facing the audience, the Master introduces them.*)

My basic branch.

(*NOTE: Girls do a drill which is given at the end of the script. After the girls march off, John speaks first.*)

JOHN: That must be arithmetic.

MASTER: (*Claps hands. Two geometry girls enter.*)

Can you guess this branch?

JOHN: That is geometry.

GE. FORM: I am Geometric Form. You will find me everywhere in everyday life. I am found in art and design, in buildings, bridges and constructions of all types. Without me the world would be shapeless.

GE. MEAS.: I am Geometric Measure. I determine size. I measure distances and directions by means of rulers, yard sticks and protractors. Without me the world would be like the crooked little man who lived in a crooked little house.

JOHN (*Aside to Genie.*): There wouldn't be any nice comfortable chairs, would there, Genie?

(*Algebra enters. She places the cubes on the scale while John moves closer to watch.*)

ALGEBRA: Now, that balances again.

JOHN: You're Algebra and that's the principle of the equation.

(*During the next speech the other three branches, trigonometry, calculus and statistics, enter.*)

ALGEBRA: Yes. The equation,—one of the mightiest tools in the solution of problems and formulas. By using letters and formulas I can say more in fewer words than any other language.

(Algebra leaves and John watches the three others who are busy.)

JOHN: Who are they?

GENIE: These are the higher branches.

MASTER: You cannot understand them until you have mastered the other three branches.

JOHN: What are . . .

MASTER: Watch and listen.

TRIG: *(Looking through transit.)* The angle of elevation is 22 degrees.

(Calculus and Trigonometry consult a table.)

CALC.: The curve of the projectile can now be determined.

(Cal. draws a line on the poster.)

STA.: Give me your reading so I can add it to my lists.

JOHN: Do you know what they are doing?

MASTER: Certainly. They are calculating the position of a gun for firing at a plane moving at 250 miles an hour.

JOHN: Who are they?

MASTER: I shall let them speak for themselves. Come here. *(He beckons to trigonometry.)* Tell this mortal who you are.

TRIG.: I am Trigonometry, the science that enables you to measure indirectly. You saw me working when I spotted that plane. By using the transit and these tables, I found the elevation of that plane.

JOHN: Isn't that marvelous. I guess you can measure the height of mountain ranges, too.

TRIG.: That is very simple.

JOHN: *(Turning to Calculus)* And who are you?

CAL.: I am Calculus. I am used by engineers in the designing of all large and important machinery in order to find out whether the machines will perform satisfactorily.

JOHN: I have heard that your branch is one of the most difficult.

CAL.: Not so difficult if you have a good foundation in the other branches.

JOHN: *(Turning to Statistics)* Won't you you tell me about yourself?

STA.: I discover and formulate relationships between variable quantities. I am useful with problems in business, economics and science. I apply my methods to data obtained by experiment or by observation.

JOHN: Imagine that. You cover some territory.

(All exit but John and Genie)

GENIE: Come, John, it is time for us to go.

JOHN: Yes sir. But, first I want to thank these friends of yours for their kindness. Why where are they?

GENIE: They are gone. You will find them in all parts of the world, anytime, anywhere, whenever counting and measuring are needed.

JOHN: And a mighty good thing it is to have their help. Are we going home now?

GENIE: No. Not yet. Come with me.

SCENE 3.

SCENE: *A shop room in a school.*

CHARACTERS.

1. JOHN GARRISON
2. THE WISHING GENIE
3. DAN
4. ED
5. FRANK
6. JIM
7. OTHER BOYS, *working on airplane models.*

JOHN: What's wrong? Is this a deaf and dumb school?

GENIE: No. Both of us are invisible.

JOHN: OH, gee whiz! Am I invisible? Could I go over and tap one of those fellows on the head without his knowing it?

GENIE: You are not here to play jokes. You are here to watch and learn.

JOHN: All right. No tricks. But, I know what those guys are doing. Working on airplane models. Why don't they do that during school hours?

GENIE: They haven't time. Do you know for whom they are making those models?

JOHN: No, sir.

GENIE: For the war department. They use these models in training camps. Our fighting men learn to recognize our planes and enemy planes by studying these models.

JOHN: I didn't know that. Guess I'll take a look around.

GENIE: Not so fast, young man. You're much too playful to turn loose as a spirit.

(*The Genie places his hand on John's head.*)

Now, you are visible. Look, the instructor sees you.

INST.: Good afternoon. Come to join our boys?

JOHN: Good afternoon. No, I was passing and I wanted to know what was going on. Do you mind if I watch?

INST.: Not at all. Come with me. These two boys are pretty good workers. (*The boys look up.*) This is Dan and this is Ed.

JOHN: My name is John, John Garrison.

INST.: John came to find out what we're doing. Think you can take care of him?

BOYS: Yes, sir.

DAN: Look. (*Showing John a plane.*)

JOHN: Nice toy.

ED: Toy! My eye! This looks exactly like a real plane when it's flying a half-mile up.

JOHN: I still don't get it. How do the men in the camps use them?

DAN: You see it's like this. A soldier looks through the ring sight of an anti-aircraft gun (*Imitates the action*). There, flies a plane (*Pointing*) half a mile up. Now, if you put this model 35 feet away and look at it through the ringsight, it looks like the real thing.

JOHN: Oh! I see. But, how do you know how big to make them?

ED: The navy sends us the plans. We use a scale of one-sixth of an inch to the foot.

DAN: For every six feet of real plane we have one inch in the model.

JOHN: Where's the drawing of that plane you have?

ED: Come on over here and we'll show you two fellows working on it.

(*All move over to Frank and Jim.*)

DAN: Hey, Frank and Jim, this is John, I forget the other name. He thought we were making toys for Santa Claus.

BOYS: Hello.

ED: Show him the blue print. (*Dan and Ed go back to work.*)

FRANK: Here's the P-40 we're working on now.

JOHN: What do you do first?

JIM: We first cut out the rough form from the pattern. Then comes the tough part of the work.

JOHN: Seems to me that the fellow who makes the drawing has the tough job.

FRANK: You said it. They're the ones who have to calculate every single line and space.

ED: We'd be sunk without these plans. The fellows who make them have to be experts in mathematics.

(*Instructor has neared the group.*)

INST.: Boys, our whole war efforts would be sunk if it weren't for mathematics. Everything on a battleship or a bomber is done by calculation today.

JOHN: I know they use it for sighting airplanes.

FRANK: For dropping bombs, too.

INST.: You're both right. Without mathematics we could never have bombed Tokyo.

(*Genie beckons to John.*)

JOHN: Well, I have to push along. This has all been mighty interesting.

INST.: When you want to help, come and join us.

JOHN: I will, sir. (*Turning to boys.*) Thanks fellows, I'll be seeing you.

BOYS: So long.

JOHN: (*To instructor.*) Goodbye, and thanks a lot.

INST.: Goodbye. Come again.

Exit.

SCENE 4.

SCENE: *Before the curtain. A street.*

CHARACTERS.

1. JOHN GARRISON.

2. THE WISHING GENIE
3. THE RECRUITING SERGEANT
4. A WORKMAN
5. A YOUNG MAN
6. A WAC

7. TWO GIRLS, *who want to volunteer*
8. A YOUNG SCHOOL TEACHER

GENIE: Wait, here, outside this recruiting station and you will hear something to interest you.

JOHN: Look! There's a recruiting sergeant.

(*A workman enters carrying posters.*)

WORKM.: Hi, there Sarge. (*Turning to speak to the sergeant who follows.*) Got some beauties here. Just came in.

SERG.: They are good. But, you know what I wish they'd send us?

WORKM.: What?

SERG.: A big poster to all the questions they ask all day long. (*Mimics.*) Can I join the Air Corps? What do I need to be recommended to Officer's Training School? Where . . .

(*This question is interrupted by WAC officer.*)

WAC: That's what I would like to have, too. The girls all come in thinking that all they have to do is look pretty and write a letter.

(*WAC leaves and Young Man enters.*)

YOU. M.: Are you the recruiting sergeant?

SERG.: Yes, I am. What can I do for you? Won't you come inside?

YOU. M.: No. I only want to ask you what I have to know to get into the Air Corps.

SERG.: Well, you know you have to take a test.

YOU. M.: Yeah. What kind of questions?

SERG.: They are on all kinds of subjects but most of them deal with technical things. You know the more math you know, the better your chance of passing. Now, here's a little book put out by the War Department. It's a technical manual, "Mathematics for Pilot Trainees." It starts out with addition, subtraction,

multiplication and division of decimals. The next part is changing common fractions to decimal fractions. Can you express $5/8$ as a decimal?

YOU. M.: Certainly. $5/8$ equals $62\frac{1}{2}$ hundredths.

SERG.: How about $7/12$?

YOU. M.: Umm—I'll need a pencil. You divide 7 by 12.

SERG.: It's all worked out here on page 18. Here's a subtraction of fractions: $9/11$ minus $6/11$.

YOU. M.: That's a cinch. $3/11$.

SERG.: Do this. Got paper and pencil. $7\frac{2}{3}$ plus $8\frac{3}{4}$ plus $11\frac{1}{2}$.

(*John has come closer.*)

You're not interested in joining up, are you?

JOHN: You bet I am, but I'm only 14.

YOU. M.: I got the answer. It's $28\frac{11}{12}$.

SERG.: That's right.

JOHN: I can do all those examples.

SERG.: It isn't all arithmetic. There's algebra, too. Here's a section on 'positive and negative numbers.

YOU. M.: I remember them.

SERG.: The next chapter is "Equations and Formulas." Did you ever hear this: C equals $5/9 (F - 32)$.

YOU. M.: I remember that from Garrison Jr. High. It's the formula used to change from Fahrenheit to Centigrade.

SERG.: That's O.K. What about problems? Think you can answer this? A soldier walked 15 miles and then returned immediately in a Jeep which averaged 45 M.P.H. The entire trip required 4 hours and 5 minutes. Find the soldier's average rate of walking.

(*A bell rings.*)

There's the telephone. Come in and I'll show you the rest of the book.

(*Exit, Sergeant and Young Man.*)

JOHN: Genie, can you answer that jeep question?

GENIE: Certainly. The answer is 4 miles.

JOHN: How did you do it?

GENIE: Algebra. Do you still think algebra is so useless?

JOHN: No, sir. I know now that I need

it if I'm going to be a pilot. (*Two girls enter.*)

1ST GL.: What do you think of that test?

2ND GL.: Too much math to suit me. I bet I flunked it.

1ST GL.: In that division of decimals I didn't know where to put the decimal point. I wish I had paid more attention to math when I went to school.

(*Girls exit. Another girl follows in their footsteps and exits without speaking.*)

GENIE: See that young lady. She didn't have any trouble with her tests.

JOHN: Why?

GENIE: She was a teacher of mathematics.

JOHN: I guess the test was a cinch to her.

GENIE: Now, let us go. I think you are thoroughly convinced of the importance of mathematics.

JOHN: I am, sir, but it seems to me it's all work. No fun.

GENIE: No fun. I see I cannot yet leave you. My work is not completed.

JOHN: Completed? I don't understand.

GENIE: I have yet to show you that you can enjoy mathematics, so come along.

Exit.

SCENE 5.

SCENE: *A radio studio.*

CHARACTERS.

1. JOHN GARRISON
2. THE WISHING GENIE
3. BENJAMIN WOLF
4. MARY KESSLER
5. USHER
6. JANE
7. THE SINGER
8. DR. QUESTION MARK
9. ANNOUNCER.

Contestants and spectators walk in and are seated. The announcer bustles about placing the loud speaker in position. To one side are three chairs for the contestants.

(*Enter Mary and Jane.*)

MARY: Well, what do you know about that! I drew a ticket. How do I look? Is my hair all right?

JANE: Don't worry about your hair. That won't win you stamps. It's what's in your head that counts.

MARY: I know I'll forget everything when I get up there.

(*Usher conducts Mary to the three chairs, where Ben is already seated. John and the Genie enter. The Genie remains back of spectators.*)

USHER: Did you draw a ticket?

JOHN: You mean this?

USHER: Please sit here.

JOHN: What goes on here?

BEN: We three are going to answer questions and win stamps. Maybe.

ANNOUNCER: Good afternoon. You are listening to Sta. WBL. Before beginning our weekly battle today, we are going to have the privilege of listening to one of our foremost radio personalities: Miss Ivy Mores.

(*Song: Johnny Got a Zero.*)

Thank you Miss Mores.

We are about to hold our 50th battle of the season. All contestants, as you know, have been impartially chosen from the pupils of our city schools. Each will be given 4 questions on general subjects. If they answer these correctly 100 points will be added to the score of the schools they represent. After this round there will be a bonus question, which, if answered correctly will be rewarded by a gift of 10 War Stamps. If the contestant misses the bonus question, he passes his stamps to the ones who answered correctly.

ANNOU.: In charge of this session we have the great questioner, the ever-interrogating, the one who asked his teacher the most questions when he went to school—the one-and-only Dr. Question Mark.

(*Applause in studio.*)

DR.: Thank you boys and girls. Now, are the contestants ready?

USHER: Here, sir, is the first contestant.

DR.: What is your name?

BEN.: Benjamin Wolf.

DR.: From what school?

BEN.: City College.

DR.: Are you ready to give us four correct answers?

BEN.: I'll give four answers, but if they are like some answers I give on my test papers—Oh, My!

DR.: Here is your first question: Who was in command of the raid on Tokyo?

BEN.: James Doolittle.

DR.: Correct. Who was Pythagoras?

BEN.: I should know that. Was he a poet?

DR.: He was a Greek philosopher and mathematician.

BEN.: I know now. He gave us the Pythagorean theory of triangles.

DR.: Yes, he did. But, I shall have to count that wrong. Your next question: Where is the Eustachian tube?

BEN.: Never heard of it. Is it in New York?

DR.: No. It is a tube connecting your inner ear with your throat. Now, for your fourth question: Is the cube a plane or a solid?

BEN.: Solid.

DR.: Correct. Well Ben, you have scored 50 points for the Senior High School Division.

(Usher leads Mary to the microphone.)

What is your name?

MARY: Mary Kessler. I'm in the sixth grade.

DR.: What school?

MARY: Number 69.

DR.: Let me see. Your questions will come from this set. Are you going to give us four correct answers?

MARY: I'll try. I'd like to fill my stamp book.

DR.: Who is the officer in charge of the WAC?

MARY: Mrs. Roosevelt.

DR.: No. Mrs. Hobby. Don't be discouraged. You have three more trials. What color of stamp does your mother use when she buys meat at the store?

MARY: Red.

DR.: What is the lower number of a fraction called?

MARY: Num—no—yes it is—numerator.

DR.: No. It's the other one, denominator. That always puzzled me when I went to school.

MARY: I had that in a test last week.

DR.: Too bad. Well here's an easy one. What will three two-cent stamps and two three-cent stamps cost?

MARY: *(Counting on fingers)* 12 cents.

DR.: That is right. You have scored, let me see, 50 points for the elementary schools.

(Mary takes her place and John comes forward.)

What is your name?

JOHN: John Garrison.

DR.: What school do you represent?

JOHN: Garrison Junior High School.

DR.: John Garrison from Garrison. Were you named for the school or did they name the school for you?

JOHN: They won't ever name any place for me.

DR.: Who knows. You might some day be president. Now, here is your first question: Who is Commander-in-chief of the United States Army?

JOHN: General Eisenhower.

DR.: No. What instrument does a surveyor use to measure angles?

JOHN: A transit. I saw one this afternoon.

DR.: Who was Archimedes? Ever hear of him?

JOHN: Is he another general in the army?

DR.: No, he was another Greek mathematician. He loved circles. Now for your fourth question. You'll have to get this right to even the score with the other schools. How many feet are in a half mile?

JOHN: Two thousand—six—hundred and—forty feet.

DR.: That is correct. You have given the Junior High School Division 50 points.

(John moves back to his seat.)

Stay here. Will the other two contestants please step forward?

(The other two come forward.)

Now I am going to give you the bonus question. The usher will give each of you a

pencil, a card and 10 defense stamps. If you write the correct answer to the bonus question on your card, you may keep the stamps. If one of you misses, he must divide his stamps, giving each of the other two, 5 stamps. If only one of you answers correctly, he will receive all of the stamps—30 in all.

Ready. I shall read the question once.

"Tom went to the barn to fetch the eggs. On the way back he stumbled and fell breaking one-third of the eggs. When he got to the house, his little sister bumped into him and broke one-half the remaining eggs. He now had 4 eggs left. How many did he have at first?"

No coaching. (*Spectators whisper.*)

Time is up.

Mary, you wrote 16. You missed it.

Ben, your card is blank.

BEN.: My mind went broke, like the eggs.

DR.: John, you have 12. That is correct. Begin collecting.

JOHN: Genie, Genie, where is he?

BEN.: You mean Genie, with the light brown hair?

DR.: What's wrong John?

JOHN: I can't believe it. I won a contest in mathematics.

Curtain.

EPILOGUE.

Before the curtain.

The Genie walks slowly across the front of the stage.

JOHN: (*Following*) Genie, I won.

GENIE: Yes, I know. Now I must say goodbye.

JOHN: Are you leaving me?

GENIE: Yes, my work with you is done.

JOHN: Goodbye and thank you, sir. I want you to know, I've learned my lesson. Mathematics, from this time on, and I are like that. (*Holding up two fingers crossed.*)

(*Turning to audience and forming V with his fingers.*) Mathematics for Victory.

ARITHMETIC DRILL

Ten girls are dressed in white playsuits

and white flat hats. The hats are made from round paper plates around which a red, white and blue border is painted. Each hat has a number from one to zero painted on the top in black. The hat is fastened by two ribbons, passing through perforations in its top.

On the back of each girl is pinned a square of white goods on which is painted another symbol used in arithmetic.

Each girl carries another paper plate, one side of which has a red border and the other side a blue border. A number or a symbol is painted in black on each side of the plate.

The following diagram shows what symbols each girl wears and what appears on each side of the plate she carries.

Number on hat	Symbol on back	Red- bordered side of plate	Blue- bordered side
1.	+	6	2
2.	—	+	=
3.	×	2	3
4.	÷	=	÷
5.	=	8	6
6.	(dec. pt.)	4	8
7.	√	—	=
8.	%	3	4
9.	π	=	×
0.	∞	1	2

The girls march in to music, single file, holding a plate in the left hand and saluting with the right. The leader gives the signal. "Face" and the girls turn to the audience. The Master of Mathematics introduces them with, "My basic branch." Thereupon each girl takes a low bow as she calls the number on her hat. The girls hold the bowed position until all numbers from one to zero are revealed.

Upon the signal, "Up" all stand upright. The leader then calls, "Our Other Symbols." Each girl calls the symbol on her back and jumps making a half turn.

"About Face." The girls turn and face the audience.

"Separate." The girls from one to five move sideward with small steps while the girls from six to zero move in like manner but in the opposite direction. There should be a gap of about three feet between the groups.

"Operate." Each girl in turn raises the plate with the red border showing to her chest as she calls the symbol on it. The plates will show an addition and a subtraction combination.

"Change." Music is played. The first girl changes places with the tenth girl, the

second girl with the ninth, etc. until each one has changed places.

"Operate." The girls now display the blue-bordered side of the plates. The result will be an example in multiplication and one in division.

"Face." The girls make a quarter turn, salute as they pass the Master of Mathematics and make their exit. As they near the side of the stage and just before leaving each two girls bow low to the audience and reveal a number of two digits on their hats.

The March of Dimes

LAST YEAR more than 50,000,000 Americans joined one of the world's largest fraternal organizations, The National Foundation for Infantile Paralysis, by contributing their dimes and dollars to the March of Dimes. The power of their combined "dues," contributed voluntarily each year, is now giving infantile paralysis victims all over the country the best care that medical science offers today.

Last year thousands of names were added to the long polio casualty list. Epidemic proportions were reached in New York, North Carolina and Kentucky. Tennessee, Virginia, Maryland, Pennsylvania, Ohio Michigan, Indiana, Louisiana, Mississippi, Illinois, Connecticut, New Jersey, and the District of Columbia were hard hit. In these stricken areas, representatives of the National Foundation worked unceasingly with state and local authorities to provide emergency aid, professional workers, supplies and equipment. In this direct way were "benefits" returned to the members, the American people, who founded and maintain the National Foundation through their contributions to the Annual Fund-Raising Appeals, points out Basil O'Connor, president of the National Foundation.

Funds raised through the 1945 March of Dimes, January 14-31, will be used to provide continued treatment for 1944 victims of polio and victims of previous years. They will also serve as a bulwark of defense against any 1945 invasion of this home-front enemy. Fifty per cent of each contribution is retained in the county where it was provided; the other 50 per cent will be working to further the National Foundation's program of research, epidemic aid and education. Keep America strong—send your dimes and dollars to The White House.

