

The Pipe Trades Training Center

Mathematics Test Information

Below is a list of areas you are encouraged to study for the math portion of the entrance exam.

- **Whole numbers:** addition, subtraction, multiplication, and division
- **Fractions:** addition, subtraction, division, and multiplication, converting improper to proper fractions, reducing
- **Percents:** converting to/from decimals or fractions, ratios, proportions
- **Know how:** to read a tape measure
- **Geometry:** square root, diameter, area, perimeter

****NO CALCULATORS ALLOWED DURING EXAM****

Sample Questions

The following sample questions will not appear on the test. They are an example of the type of questions that might appear on the test. Calculators are not allowed during the entrance exam!

1. If your pay is \$52.00 a month, how much will you earn in a year?
2. Your grades on 5 tests were 80%, 90%, 70%, 60% and 50%. What is the average of your 5 grades?
3. A dealer bought 3 loads of coal weighing 6,242 lbs., 28,394 lbs. and 143,686 lbs. How much did he buy in all?
4. It takes 5 lbs. of cement to cover 10 square feet. How many lbs. of cement will be needed to cover a rectangular area 25 ft. by 10 ft.?
5. Two machinists operating the same lathe, work 10 hours each on a day shift and on a night shift, respectively. One man turns out 400 pieces an hour, the other 600 pieces an hour. What will be the difference in their output at the end of 30 days?
6. If it takes 5 hours to do $\frac{2}{3}$ of a job, how long will it take to complete the job?

Find the decimal equivalent to the nearest thousandths of the following:

7. $\frac{3}{4}$
8. $\frac{28}{32}$
9. $\frac{56}{64}$
10. $\frac{31}{32}$
11. $\frac{7}{64}$
12. Multiply .214 by .303

13. Multiply .014 by .0064
14. Find $12\frac{1}{2}$ % of 96 men.
15. Find $\frac{1}{2}$ of 1% of 190 tons.
16. 225 is 25% of what amount?
17. 120 is what percent of 240?
18. A truck carrying 6,750 lbs. of lead weighed 9,000 lbs. What percent of the total weight was due to the weight of the truck?
19. One customer received a 25% discount on a \$300 bill. The second customer received an 8% discount on a \$300 bill. The third customer received a 5% discount on a \$300 bill. What was the total amount discounted to the three customers?
20. A plumber sells 100 sets of bathroom fixtures at \$165.00 per set. At 16% what would his commission be?
21. A loss of \$13.50 on a washing machine represents 15% loss on the selling price. What is the selling price?
22. Find the square root of 2937.44 by the arithmetic method.
23. Find the volume of a rectangular solid 20 ft. wide, 28 ft. long and 16 ft. high.
24. Find the area of a circle that has a radius of 12 inches.
25. A company marched 48 miles in 5 days. The first day they marched 12 miles, the second day 9 miles, the third day 7 miles, the fourth day 9 miles. How many miles did they march the last day?
26. If an automobile travels 450 yards in 15 seconds, how many feet does it go in $\frac{1}{3}$ of a second?
27. How many tiles 9 inches square will be necessary to floor a room measuring 35 feet by 20 feet? (Round off to nearest tile)
28. Add the following numbers: 4,585,285 plus 792 plus 73,214.
29. 620.75 divided by .25 equals
30. A 3" pipe has an inside diameter of 3.067" and an outside diameter of 3.5". What is the thickness of the wall?

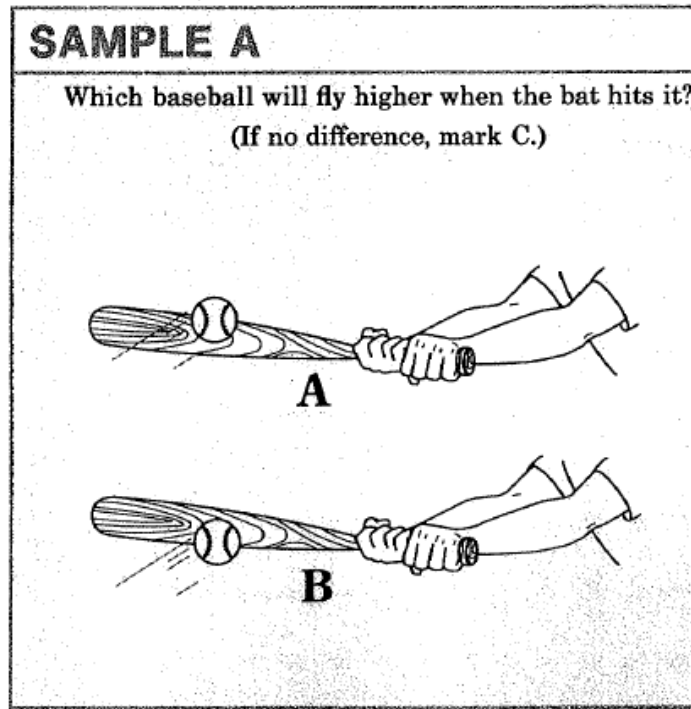
Answers:	1.	\$624.00/year	11.	.109	21.	\$90.00
	2.	70%	12.	.064842	22.	54,198
	3.	178,322 lbs. total	13.	.0000896	23.	8,960 cubic ft.
	4.	125 lbs = x	14.	12 men	24.	452.3904 sq. in.
	5.	60,000 pieces	15.	.95 tons	25.	11 mi.
	6.	7.5 hours = 1 job	16.	900 = ?	26.	30 ft.
	7.	.750	17.	50%	27.	1,244 tiles
	8.	.875	18.	25%	28.	4,659,291
	9.	.875	19.	\$114.00	29.	2483
	10.	.969	20.	\$2,640.00	30.	.2165" (1)-wall thickness

DIRECTIONS

Find the space for Mechanical Reasoning on your answer document. You are to mark all of your answers on your answer document. Do *not* write in this test booklet.

In this test, you are to read each question carefully, look at the picture or pictures, and choose which one of the three answers, A, B, or C, is the *best* answer. Then mark the space on your answer document for the answer you have chosen.

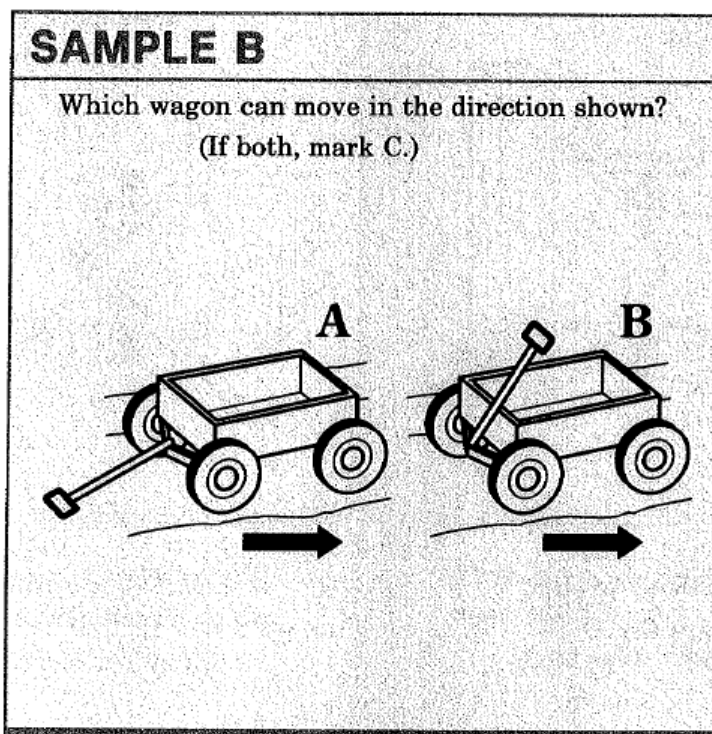
Look at *Sample A*.



Sample A shows two pictures that look similar. However, one detail is different: picture A shows the bat hitting the bottom of the baseball, and picture B shows the bat hitting the top of the baseball.

Ball A will fly higher because the bat is hitting the ball from below. Circle A for *Sample A* has been filled in on your answer document.

Look at *Sample B*.



Sample B also shows two pictures that are similar except for one detail: picture A shows a wagon with the handle down, and picture B shows a wagon with the handle up.

The answer is C. Both wagons can move in the direction shown because the handle position has no effect when the wagons move backwards. Fill in circle C for *Sample B* on your answer document.

Remember, if the question relates to two or more pictures, assume that the pictures are exactly the same except for the *one* detail that is shown to be different. Before you answer the question, look at each picture carefully and notice the one detail that is different.

If you have difficulty with a particular question, leave it and do the ones you find easier. Then, if you have time, go back to the questions you have skipped on this test only. Do *not* go on to the next test. Stop and wait for further directions.