Activity 2: Civil Service Exam Questions for Mechanical Trades – Many of the newspaper articles advertising jobs available at the Armory mentioned that applicants needed to take a civil service exam. The following are examples of questions that would have appeared on a test of mechanical aptitude and knowledge in the 1940's.

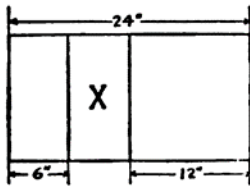# Tests of Mechanical Aptitude and Knowledge

Shop Arithmetic

In each of the following machine-scored problems, five different answers are suggested. In each problem, notice the *letter* preceding the *correct* answer. The space corresponding to this letter has been blackened in on the answer sheet in the corner of this page. In question 9, none of the figures given is the correct answer; hence the proper letter to choose is E, which is the letter preceding the answer "none of these."

1. When 100, 125, 75, and 20 are added the answer is
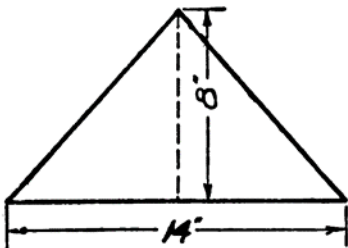   (A)220 (B)270 (c)325 (D)320 (E)420

   The sum of these numbers is 320. Look at the choices given and you will find the number 320 after the letter (D). Therefore, to answer question 1, the space under the letter D on the answer sheet should be blackened.
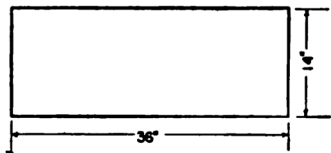
2.

   X is what part of the whole sheet?
   (A)⅙ (B)⅓ (c)¼ (D)½
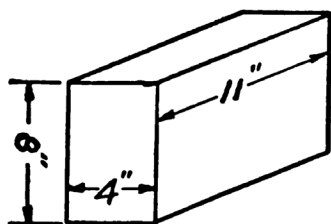   (E) none of these

3.

   The area of the triangle in square inches is
   (A)56 (B)112 (c)122 (D)22 (E)448

4.

   What is the greatest number of pieces 9″ x 2″ that could be cut from the given sheet of metal?
   (A)18 (B)21 (c)26 (D)80 (E)28

5.

   The volume of the rectangular solid in cubic inches is
   (A)352 (B)44 (c)1,308 (D)88 (E)32

6. ½ of ¼ is
   (A)1/12 (B)⅛ (c)½ (D)¼ (E)8

7. A circular saw cuts 8 boards per minute. If there are 1,440 boards to be cut, the number of *hours* required to cut these boards is
   (A)2½ (B)2⅔ (c)4 (D)3¾ (E)3

8. A drawing of a certain building is 10 inches by 15 inches. On this drawing 1 inch represents 5 feet. If the same drawing had been made 20 inches by 30 inches, 1 inch on the drawing would represent
   (A)7½ feet (B)5 feet (c)10 feet
   (D)3½ feet (E)2½ feet

9. During his first 8-hour day, an apprentice earned 40 percent as much as a master mechanic. If the master mechanic earned $14.00, what was the apprentice's average *hourly* earning?
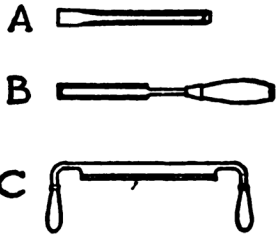   (A)$0.80 (B)$1.20 (c)$0.84 (D)$0.56
   (E) none of these

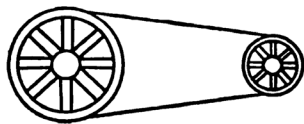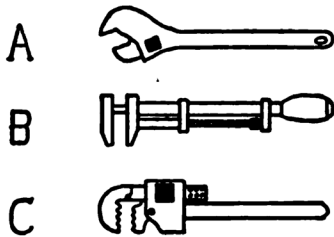| Answer Sheet: |
|---|
| 1. |
| 2. |
| 3. |
| 4. |
| 5. |
| 6. |
| 7. |
| 8. |
| 9. |

Sometimes questions testing knowledge of mechanical facts are included in tests for mechanical positions. Often, however, such positions, particularly those at the apprentice level, require aptitude rather than knowledge. Many types of questions, some measuring aptitude, others measuring knowledge and ability, are likely to be found in mechanical tests. Illustrations are given on this page and on the next few pages.

Tools and Mechanical Principles

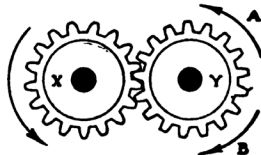1. Which of these tools could best be used to cut iron?

A

B

C

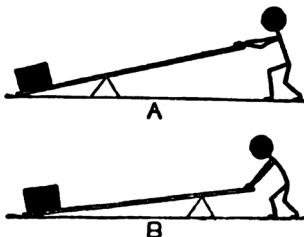2. Which of these wrenches can best be used to tighten a round pipe coupling?

A

B

C

3. When the two pulleys connected by the belt turn, they turn in

A) the same direction
B) opposite directions

4. If X travels in the direction shown, gear Y will travel in which direction?

5. Which man can lift the greater weight?

Information and Judgment

6. Which one of the following frequencies is most commonly used in the United States in alternating-current lighting circuits?

A) 10 cycles
B) 25 cycles
c) 40 cycles
D) 60 cycles
E) 110 cycles

7. The device used to mix the air and the fuel in a gasoline engine is called the

A) carburetor
B) cylinder
c) distributor
D) manifold
E) valve

8. Which one of the following would cause excessive backlash in the rear axle assembly?

A) bent rear axle shaft
B) chipped differential gears
c) improper lubrication
D) worn differential gears and thrust washers
E) ring gear adjusted too close to pinion

9. John earns more than Joe, and Jack earns less than John but more than Bill. Therefore,

A) Jack earns more than Joe
B) Bill earns less than Joe
c) Joe earns more than Jack
D) John earns more than Bill
E) Joe earns less than Bill

Answer Sheet:

1.

2.

3.

4.

5.

6.

7.

8.

9.

<u>**Exit Ticket/Lesson Summarizer:**</u>

In at least three sentences, defend the following statement:

Working at the Springfield Armory was a demanding job.

You should reference specific information from the primary sources in your response.

Answer Key for Civil Service exam questions

<u>Page 1:</u>   <u>Page 2:</u>

Section of Answer Sheet

Page 1:

#	A	B	C	D	E
1				●	
2			●		
3	●				
4					●
5	●				
6		●			
7					●
8					●
9					●

Page 2:

#	A	B	C	D	E
1	●				
2			●		
3	●				
4		●			
5	●				
6				●	
7	●				
8				●	
9				●	