# USN Road Grader Practice Exam (Sample)

## Study Guide


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# Questions

**1. Feathering the moldboard is performed by raising it in what increments?**

**A. 1/4"- 1/2"**

**B. 1/2"- 1"**

**C. 1"- 2"**

**D. 2"- 3"**

**2. What can occur if the grader is attempted to cut deeper than 4"?**

**A. It may accelerate faster**

**B. Could stall the grader or pull to one side**

**C. No effect on the operation**

**D. Improved efficiency**

**3. Which part of the grader's blade is referred to as the trailing end?**

**A. Toe**

**B. Heel**

**C. Tip**

**D. Edge**

**4. When leveling using RHGG, how many passes are required?**

**A. 1**

**B. 2**

**C. 3**

**D. 4**

**5. Why should an operator adjust the grader's speed during different grading tasks?**

**A. To maintain control and achieve the desired finish**

**B. To save fuel**

**C. To reduce noise levels**

**D. To keep up with job site schedules**

**6. Which part of the grader's blade is referred to as the leading end?**

**A. Toe**

**B. Heel**

**C. Tip**

**D. Edge**

**7. What is the correct cutting procedure after setting the blade in the RHGG position?**

**A. Skim with the heel**

**B. Cut 1/4" with the toe**

**C. Cut 1/2" with both heel and toe**

**D. Raise the blade completely**

**8. Before performing maintenance, what is critical to check to ensure safety?**

**A. Fuel levels**

**B. Blade positioning**

**C. Machine stability and grounds**

**D. Height of the gradient**

**9. What is a critical factor in selecting the right grader for a specific job?**

**A. Color of the machine**

**B. Size and power specifications**

**C. Availability of parts**

**D. The operator's preference**

**10. What common issue can arise from improperly adjusted blade height?**

**A. Improved drainage and road stability**

**B. Worn out tires on the grader**

**C. Uneven road surfaces and inadequate drainage**

**D. Increased fuel usage**

# Answers

1. B
2. B
3. B
4. B
5. A
6. A
7. C
8. C
9. B
10. C

# Explanations

## 1. Feathering the moldboard is performed by raising it in what increments?

**A. 1/4"- 1/2"**

**B. 1/2"- 1"**

**C. 1"- 2"**

**D. 2"- 3"**

**Feathering the moldboard involves making subtle adjustments to its height in order to achieve a smooth and even grading surface. Raising the moldboard in increments of 1/2" to 1" is considered optimal because it allows for a balance between control and effectiveness in fine-tuning the grade without causing drastic changes to the surface being worked on. This range enables operators to gradually shift the angle at which the blade engages the surface, promoting a smoother transition and better finish. Smaller increments, like those less than 1/2", may not provide sufficient change to effectively feather the surface, while larger increments could lead to uneven grading and compromised results. Thus, the chosen range helps ensure precision in the grading process.**

## 2. What can occur if the grader is attempted to cut deeper than 4"?

**A. It may accelerate faster**

**B. Could stall the grader or pull to one side**

**C. No effect on the operation**

**D. Improved efficiency**

**When a grader attempts to cut deeper than 4 inches, it can lead to stalling or cause the machine to pull to one side. This happens because the grader's engine has to work significantly harder to penetrate the ground at a depth greater than its designed capability. The excessive load can overwhelm the engine, resulting in a loss of power, which can cause stalling. Additionally, if one side of the grader encounters more resistance than the other, it can create an imbalance, making the machine pull to one side, affecting both the control and operational efficiency. Thus, maintaining an appropriate cut depth is crucial for the effective and safe operation of the grader.**

## 3. Which part of the grader's blade is referred to as the trailing end?

**A. Toe**

**B. Heel**

**C. Tip**

**D. Edge**

**The trailing end of the grader's blade is referred to as the heel. The heel is the part of the blade that follows the primary cutting edge during operation. It plays a crucial role in shaping and controlling the material being moved or graded. As the grader approaches the work area, the leading edge, known as the toe, cuts into the material. Once this material has been moved, the heel helps to maintain the desired grade by smoothing and leveling the surface. In this context, understanding the function of the heel is essential when operating the grader, as it ensures effective material handling and contributes to achieving the precise elevation and contour required for the project. The blade's design, including the heel, is integral to the overall effectiveness of the road grader in construction and maintenance tasks.**

## 4. When leveling using RHGG, how many passes are required?

**A. 1**

**B. 2**

**C. 3**

**D. 4**

**In road grading, particularly when utilizing a Rear-Heavy Grader Grading (RHGG) technique, achieving a smooth and level surface often requires multiple passes. The commonly accepted practice is that two passes are typically needed for effective leveling. The first pass is usually employed to cut into the existing surface, moving material to create a rough grade. This pass aims to remove any high spots and fill in low areas to create a more uniform surface. The second pass then refines this surface, further leveling and smoothing out any irregularities left from the first pass. By utilizing two passes, the operator can ensure that the material has been adequately moved and redistributed, leading to a flatter, more stable roadbed or surface. This method not only helps achieve the desired flatness but also facilitates drainage and prevents issues related to uneven surfaces in the future. Understanding this process is crucial in achieving quality results while using an RHGG technique, making the two-pass requirement a standard practice in road grading operations.**

## 5. Why should an operator adjust the grader's speed during different grading tasks?

**A. To maintain control and achieve the desired finish**

**B. To save fuel**

**C. To reduce noise levels**

**D. To keep up with job site schedules**

**An operator should adjust the grader's speed during different grading tasks primarily to maintain control and achieve the desired finish. Different grading operations may require varying levels of precision; for example, when performing a fine grading task, a slower speed allows the operator to have more control over the machine's movements, ensuring a smoother and more accurate surface. Conversely, when rough grading, a faster speed might be appropriate for effective material displacement. By adjusting speed appropriately, an operator can also adapt to changing conditions of the terrain and the material being graded, leading to better results in accordance with the specific requirements of the job. This attention to speed helps in achieving the desired grading finish efficiently and effectively.**

## 6. Which part of the grader's blade is referred to as the leading end?

**A. Toe**

**B. Heel**

**C. Tip**

**D. Edge**

**The leading end of the grader's blade is referred to as the toe. This part is crucial because it is the forward-most section of the blade during operation and is primarily responsible for cutting into the material being worked on, such as soil or gravel. The functionality of the toe affects how effectively the grader can shape and level surfaces. Understanding the role of the toe helps operators recognize how to adjust the blade for different grading tasks and materials. For instance, if the toe is set too high, it may not engage the material effectively, leading to poor grading performance. Recognizing this specific terminology is essential for effective communication and operation in road grading tasks.**

## 7. What is the correct cutting procedure after setting the blade in the RHGG position?

**A. Skim with the heel**

**B. Cut 1/4" with the toe**

**C. Cut 1/2" with both heel and toe**

**D. Raise the blade completely**

**When setting the blade in the Road Grader's Right Hand Grader (RHGG) position, the procedure involves using the blade effectively to ensure an efficient cut for leveling or grading surfaces. The correct cutting procedure is to cut 1/2" with both the heel and toe of the blade. This approach provides a balanced and efficient cutting condition, allowing the operator to achieve the desired pavement smoothness while promoting better control and stability. Using both the heel and toe allows for a full depth of cut that prevents excessive material being moved in one single pass, which can cause uneven surfaces. It also helps to minimize the risk of gouging or damage to the surface being graded. This method of cutting with both edges ensures optimal use of the blade's design, facilitating the best possible outcome for the grading task at hand.**

## 8. Before performing maintenance, what is critical to check to ensure safety?

**A. Fuel levels**

**B. Blade positioning**

**C. Machine stability and grounds**

**D. Height of the gradient**

**Ensuring machine stability and the condition of the ground is critical before performing maintenance on heavy equipment like a road grader. This focus on stability is essential because the operation and maintenance of such machinery can be dangerous if the machine is not situated on solid, level ground. An unstable surface increases the risk of tipping or rolling over, which can lead to serious accidents. Checking machine stability involves ensuring that the equipment is on firm, even terrain, and not on an incline or loose soil, which can compromise safety during maintenance tasks. Additionally, ensuring that the machine is parked properly and secured can help prevent any unexpected movements that could cause injury. While other aspects, such as fuel levels, blade positioning, and the height of the gradient, are important aspects of operating and maintaining a road grader, they do not have the same immediate impact on safety as ensuring the stability of the machine and the grounds on which it operates. By prioritizing stability and the condition of the ground, operators significantly reduce the risk of accidents during maintenance work.**

## 9. What is a critical factor in selecting the right grader for a specific job?

**A. Color of the machine**

**B. Size and power specifications**

**C. Availability of parts**

**D. The operator's preference**

**Selecting the right grader for a specific job primarily hinges on the machine's size and power specifications. These factors determine the grader's ability to effectively perform tasks like leveling, grading, and shaping various types of terrain under different conditions. A grader that is adequately sized and powerful can handle the volume of material that needs to be moved, the type of surface being worked on (such as gravel, asphalt, or dirt), and the specific requirements of the job, such as depth of cut, grading accuracy, and slope precision. Understanding the job's demands helps ensure the grader can operate efficiently and effectively. For instance, using a grader with insufficient power might lead to slower operations and inadequate results, while a machine that is too large for the job might be inefficient or could damage the surface being worked on. While factors like the availability of parts and the operator's preference can play a role in the overall decision-making process, they do not directly influence the technical effectiveness of the grader for the specific task at hand. Similarly, the color of the machine has no bearing on its operational capabilities and performance in grading tasks. Thus, focusing on size and power specifications is crucial for selecting the most suitable grader for a particular job.**

## 10. What common issue can arise from improperly adjusted blade height?

**A. Improved drainage and road stability**

**B. Worn out tires on the grader**

**C. Uneven road surfaces and inadequate drainage**

**D. Increased fuel usage**

**Improperly adjusted blade height can lead to uneven road surfaces and inadequate drainage, which are critical factors in road grading. When the blade is set too high or too low, the material is not distributed evenly across the width of the road, resulting in a surface that is either too high in some areas or too low (creating depressions) in others. This unevenness can cause water to pool in low spots rather than draining away properly, potentially leading to erosion and further damage to the road surface. Correct blade height adjustment helps achieve a smooth and level surface, which facilitates proper water flow and drainage, ensuring the longevity of the road and the safety of its users.**