AIRFRAME & POWERPLANT MECHANICS

GENERAL TEST GUIDE

Written, Oral, and Practical

ALIGNS WITH

FAA-H-8083-30B & FAA-H-8083-30B-ATB

Airframe & Powerplant Mechanics General Handbook

2026 EDITION

Aircraft Technical Book Company
72413 US Hwy 40 - Tabernash, CO 80478-0270 USA
(970) 726-5111
www.actechbooks.com

TABLE OF CONTENTS

MATHEMATICS IN AVIATION MAINTENANCE

CHAPTER 3

Fractions, Mixed Numbers, the Decimal System, Proportion, Ratio, Percentage, Powers, Scientific Notation, Algebra, Volume and Area

QUESTIONS

3-1 AM.I.H.K8
When working with fractions, the common denominator can be found by multiplying all of the denominators together.
A. True
B. False
C. Cannot be determined

3-2 AM.I.H.K13
When dividing fractions, it is best to invert the second fraction and multiply the resulting numbers.
A. True
B. False
C. Cannot be determined

3-3 AM.I.H.K9
Round off the value 24.2165 inches to within 1/100th of an inch.
A. 24.217"
B. 24.21"
C. 24.22"

3-4 AM.I.H.K13
An aircraft bolt has an overall length of 1-1/2 inches, a shank length of 1-3/16 inches, and a threaded portion length of 5/8 inch. What is the grip length?
A. 0.3125 inch
B. 0.5625 inch
C. 0.8750 inch

3-5 AM.I.H.K8
Select the fractional equivalent for a 0.0625 inch thick sheet of aluminum.
A. 1/16
B. 11/32
C. 3/64

3-6 AM.I.H.K8
A blueprint shows a hole of 0.17187 to be drilled. Which fraction size drill bit is most nearly equal?
A. 9/32
B. 11/32
C. 11/64

ANSWERS

3-1 Answer A
Mathematical principle states that when adding and subtracting fractions the fractions must have a common denominator. A simple way to find the common denominator is to multiply all the denominators together. Note, however, that this number will not always be the Least Common Denominator (LCD) but can be used to continue the calculations. When the final fraction is determined, it may have to be reduced to its lowest terms and/or corrected so it is not an improper fraction.
Ref: General Handbook H-8083-30B-ATB, Chapter 3 Page 2

3-2 Answer A
Mathematical principle states that to divide fractions, invert the second fraction and then multiply the first fraction by the new inverted second fraction.
Ref: General Handbook H-8083-30B-ATB, Chapter 3 Page 3

3-3 Answer C
When rounding a number, first determine the value to which it must be rounded. In this case to 100's of an inch. So, 24.21. Then, if the digit to the right of its hundredth place is 5 or greater (here it is 6), increase by one for a result of 24.22. If the digit is less than 5, drop it and the remaining digits.
Ref: General Handbook H-8083-30B-ATB, Chapter 3 Page 6

3-4 Answer B
This question provides you more information than needed. The overall length of the bolt is not important to determine the grip length. To find the grip length subtract the length of the threaded portion from the length of the shank.
Grip length = shank - threaded portion
Shank = 1-3/16 = 19/16 or 1.1875
Threaded portion = 5/8 = 10/16 or .625
Grip length = 1.1875 – .625
Grip length = .5625
Ref: General Handbook H-8083-30B-ATB, Chapter 3 Page 4

3-5 Answer A
To convert a decimal number to a fraction "read" the fraction, this is six hundred twenty-five ten thousandths. As a fraction, it is written as 625/10,000. Find the lowest common denominator, which happens to be 625, reducing the fraction to 1/16.
Ref: General Handbook H-8083-30B-ATB, Chapter 3 Page 6

3-6 Answer C
To convert a decimal number to a fraction "read" the fraction, this is seventeen thousand one hundred eighty-seven hundred thousandths. As a fraction, this is written as 17,187/100,000. However, this fraction cannot be reduced any lower. How do we determine which drill bit to use, since this obviously is not an option? In this question, divide each answer to turn the fractions into decimals: 9/32 = 0.28125, 11/32 = 0.34375 and 11/64 = 0.171875; 11/64th is the closest drill bit size without over-sizing the hole.
Ref: General Handbook H-8083-30B-ATB, Chapter 3 Page 6