MSTAR PRACTICE WORKSHEET

Lesson 3-10: Convert Measurement Units

Grade 6 Mathematics · Standard 6.AT.3c

Name: _____ Date: _____

These are MSTAR-style questions written for this curriculum to rehearse the format. They are not official Maryland assessment items. MSTAR — Maryland's new state test, first given in spring 2027 — uses the same kinds of questions you see here: selected response, select-all, two-part evidence questions, and written responses.

Part A — Skills Check

Warm up with the lesson's core skills — one best answer each.

Question 1 SELECTED RESPONSE · 1 POINT

How many inches are in 7 feet?

(A) 70 inches

(B) 72 inches

(C) 84 inches

(D) 96 inches

Question 2 SELECTED RESPONSE · 1 POINT

How many feet are in 3 yards?

(A) 6 feet

(B) 9 feet

(C) 12 feet

(D) 36 feet

Question 3 SELECTED RESPONSE · 1 POINT

How many ounces are in 4 pounds?

(A) 16 ounces

(B) 32 ounces

(C) 48 ounces

(D) 64 ounces

Question 4 SELECTED RESPONSE · 1 POINT

Convert 24 inches to feet.

(A) 2 feet

(B) 3 feet

(C) 12 feet

(D) 24 feet

Question 5 SELECTED RESPONSE · 1 POINT

A shelf is 30 inches long. How many feet and inches is that?

(A) 1 foot 18 inches

(B) 2 feet 6 inches

(C) 2 feet 8 inches

(D) 3 feet 0 inches

Question 6 SELECTED RESPONSE · 1 POINT

Leg 1: The joystick rod is 3 feet long, but the parts catalog lists it in inches. How many inches is that? (1 ft = 12 in)

(A) 15 inches

(B) 30 inches

(C) 33 inches

(D) 36 inches

Part B — Test-Format Questions

These match the state test's formats: two-part questions, select-all, and written responses.

Question 7 TWO-PART QUESTION

Part A

Convert 3 hours to seconds using 1 hour = 60 minutes and 1 minute = 60 seconds.

Fill in the bubble next to the one best answer.

- (A) 120 seconds
- (B) 180 seconds
- (C) 3,600 seconds
- (D) 10,800 seconds

Part B

Answer Part A before Part B — Part B asks about your reasoning.

In dimensional analysis, how are the conversion ratios arranged?

- (A) So all units are multiplied together and kept.
- (B) So the largest unit is always on top.
- (C) So the numbers are as small as possible.
- (D) So the unwanted units appear in both a numerator and a denominator and cancel.

Question 8 SELECT ALL THAT APPLY

Select ALL statements that are true about dimensional analysis:

Mark the box next to EVERY answer that is true. More than one is correct.

- [A] The given measurement is written as a fraction over 1.
- [B] Conversion ratios are arranged so unwanted units cancel.
- [C] Only the unit that remains after cancelling appears in the answer.
- [D] Units may be ignored as long as the numbers are multiplied correctly.
- [E] More than one conversion ratio can be used in a single chain.

Part C — Show Your Thinking

Answer in writing, the way the state test's constructed responses work.

Question 9 WRITTEN RESPONSE · 2 POINTS

A recipe says you need 5 feet of ribbon, but the store only sells ribbon in inches. Another recipe says you need 2 yards of fabric, but your ruler measures in feet. Convert both measurements and explain the steps you used. Which conversion factor did you use each time?

Write your answer in complete sentences. Show or explain your mathematical thinking.

When you finish, check your reasoning with your teacher or family. Your teacher has the scoring guide for the written responses.