

Grade 7 • Unit 9 Worksheet

Putting It All Together

Name: _____

Date: _____

Part A • Year-End Fluency Mix

Skills from across the year.

$-18 + 25 =$ _____	$(-6)(-4) =$ _____	30% of 80 = _____	$2(x + 5)$ when $x = 7$ = _____
$A = \pi r^2$ for $r = 5$ (in terms of π) = _____	Solve $3x - 12 = 6 =$ _____	Scale 1:50, drawing 6 cm = ?m actual = _____	P(rolling even on a d6) = _____

Part B • Running a Restaurant

1. A recipe yields 12 servings. Ingredients cost: \$24 for chicken, \$5 for vegetables, \$3 for sauce.

- Cost per serving: \$ _____
- To make a profit, the restaurant marks up the cost by 150% (so the menu price is 250% of cost). Menu price per serving: \$ _____
- If sales tax is 7% and customer leaves 18% tip on pre-tax, total customer pays per serving: \$ _____

Part C • Real-World Geometry & Scale

2. A circular pizza pan has diameter 16 inches.

Area of the pan: _____ sq in (in terms of π)

Area: _____ sq in (using $\pi \approx 3.14$)

Length of dough needed to make the crust (circumference): _____ in

3. A floor plan uses scale 1 cm = 1.5 m. The plan shows a rectangular room of 6 cm $\times$ 4 cm.

Actual dimensions of the room: _____ m × _____ m

Actual area: _____ sq m

If carpet costs \$25/sq m, total carpet cost: \$ _____

Part D • Population Density

4. Town A has 12,000 people on 4 sq mi. Town B has 30,000 people on 12 sq mi.

- a. Population density of A: _____ people / sq mi
 - b. Population density of B: _____ people / sq mi
 - c. Which is more crowded? _____. By what ratio?
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Part E • Fermi Problem (estimation)

5. Estimate the number of breaths a 12-year-old has taken in their lifetime. Show your reasoning step by step.

Breaths per minute (assumed): _____

Minutes per day: _____

Days per year: _____

Years: _____

Total estimate: _____

Part F • Sampling & Probability Wrap-up

6. A spinner has sections labeled A, B, C, D with probabilities 0.2, 0.3, 0.4, and ? respectively.

What must $P(D)$ be? _____. Why?

Out of 200 spins, about how many should land on B? _____

7. You want to estimate the average height of 7th graders in your district (1,200 students). You can survey 60.

Describe a good random sampling method:

Your sample's mean was 60 inches with MAD = 2 inches. Estimate the population mean and give a range.

Part G • Reflection & Open-Ended

8. Pick the topic from Grade 7 you understand BEST. Write one strong problem from that topic (with answer) that you could teach a friend.

Topic: _____

My problem:

Answer:

9. What's one topic from Grade 7 that still feels confusing? Describe what's hard about it.

10. Find a real example in the news, on a label, or in your life where math from THIS YEAR was used. Describe it.
