

Unit 9: Putting It All Together

ADVANCED

Name: _____ Date: _____

Solve each problem and give an exact answer. Show your work on scratch paper; write only the final answer.

1. A recipe uses flour and sugar in the ratio 5:3. If a baker uses 45 cups of flour, how many cups of sugar are needed?

Answer: _____

3. Evaluate the expression $3x^2 - 4y$ when $x = 5$ and $y = 7$.

Answer: _____

5. Compute: $-\frac{3}{4} + \frac{5}{6} - (-\frac{1}{3})$. Give the answer as a fraction in lowest terms.

Answer: _____

7. The expression for a taxi fare is $2.5 + 1.75m$, where m is miles driven. Also included is a 20% tip on the fare. What is the total cost, in dollars, for a 12-mile trip?

Answer: _____

9. A tank drains at a constant rate. In 6 minutes the water level drops from 84 liters to 57 liters. Starting from 84 liters, after how many minutes will the tank be empty?

Answer: _____

2. A car travels 245 miles in 3.5 hours at a constant speed. At this rate, how many miles does it travel in 8 hours?

Answer: _____

4. Two machines fill bottles. Machine A fills 120 bottles in 8 minutes; Machine B fills 165 bottles in 15 minutes. How many more bottles does the faster machine fill per minute than the slower one?

Answer: _____

6. A store mixes two kinds of nuts in the ratio 7:5 (cashews to almonds). A bag contains 96 nuts total. How many cashews are in the bag?

Answer: _____

8. Point P is at $(-6, 9)$. Point Q is the reflection of P across the x-axis. Point R is the reflection of Q across the y-axis. What are the coordinates of R? Give as (x, y) .

Answer: _____

10. Simplify the expression $4(2a + 3) - 3(a - 5) + 2a$, then evaluate it when $a = -2$. What is the value?

Answer: _____

11. Three friends share prize money in the ratio 4:5:7. The friend with the largest share receives \$126 more than the friend with the smallest share. What is the total prize money, in dollars?

Answer: _____

12. A submarine is at -180 feet. It rises at 15 feet per minute for 6 minutes, then descends at 8 feet per minute for 4 minutes. What is its final depth, in feet (as a signed number)?

Answer: _____