

10.5 Algebraic Reasoning

Chapter 10: Final Cumulative Review

Name: _____

Date: _____

Class/Period: _____

10.149 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Evaluate $-7 + 12$ and justify the sign.

10.152 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Evaluate $-18 - (-6)$ and justify the sign.

10.150 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Evaluate $15 + (-23)$ and justify the sign.

10.153 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Evaluate $(-6)(8)$ and justify the sign.

10.151 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Evaluate $-9 - 14$ and justify the sign.

10.154 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Evaluate $(-7)(-9)$ and justify the sign.

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10.155 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Evaluate $84 \div (-12)$ and justify the sign.

10.158 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Evaluate $3a^2 - 2b$ when $a = -4$ and $b = 5$. Show the substitution using parentheses around the negative value.

10.156 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

In $(-3)^4$, identify the base and exponent. Expand the power as repeated multiplication and evaluate it. Then state the values of $(-3)^1$ and $(-3)^0$.

10.159 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Translate: five less than three times a number. Explain order.

10.157 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

A student says that the terms of $7x - 4y + 12$ are 7, x , 4, y , and 12.

Is the student correct? Explain the difference between a term and a factor, then identify the terms of the expression and the factors in each variable term.

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10.160 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

When $x = -2$, evaluate $3x^2$ and $(3x)^2$. Are the two expressions equal? Explain how the parentheses change the base.

10.163 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Simplify $4a - 7 + 3b - 9a + 12 - 5b$.

10.161 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Write words for $4(2x - 3) + 5$.

10.164 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Explain why $3x + 4y$ cannot become $7xy$.

10.162 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Simplify $7x + 3 - 2x + 11$.

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10.165 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Expand $6(2x + 5)$ using distribution.

10.166 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Factor $18x + 30$ using the GCF.

10.167 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Simplify $-3(4x - 7) + 5x$.

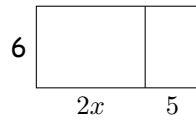
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10.168 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Use the area model to explain distribution of $6(2x + 5)$.



10.169 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Evaluate

$$18 - 2(3^2).$$

State which operation must be performed first and explain why.

10.170 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Determine whether $4(2x + 1)$ and $8x + 4$ are equivalent for all x .

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10.171 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Solve $x + 17 = 43$ and check by substitution.

10.174 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Solve $3x + 7 = 34$ using legal balance steps.

10.172 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Solve $5x = 65$ and check by substitution.

10.175 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Solve $5 - 2x = 19$ using legal balance steps.

10.173 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Solve $x - 12 = -19$ and check by substitution.

10.176 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Solve $\frac{x}{4} + 9 = 15$ using legal balance steps.

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10.177 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Solve $0.6x - 2.4 = 7.2$ using legal balance steps.

10.180 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Solve $\frac{x-2}{5} + 3 = 8$. Simplify before isolating the variable.

10.178 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Solve $4(x - 3) + 7 = 31$. Simplify before isolating the variable.

10.181 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Solve $7 - 2(3x - 4) = 25$. Simplify before isolating the variable.

10.179 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Solve $3(2x + 5) - 4x = 29$. Simplify before isolating the variable.

10.182 Directions:

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Solve $5x + 8 = 3x + 26$ and check.

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10.183 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Solve $7 - 2x = 4x + 19$ and check.

10.186 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Classify $5x - 7 = 5x + 2$ and explain the contradiction.

10.184 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Solve $3(x + 4) = 2x + 17$ and check.

10.187 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Write one equation that has infinitely many solutions.

10.185 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Classify $4(x + 3) = 4x + 12$ as one, none, or infinitely many solutions.

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10.188 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

A student writes

$$2^3 + 2^2 = 2^5.$$

Explain the mistake and evaluate both sides to correct the statement.

10.191 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

A rectangle has perimeter 58 cm and length 5 cm more than twice its width. Find the dimensions.

10.189 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

A student changes $3x - 8 = 19$ into $3x = 11$ by moving 8. Correct the balance reasoning.

10.192 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Three consecutive integers sum to 96. Find them.

10.190 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

A gym charges \$24 plus \$7 per visit. A member pays \$101. Find visits.

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10.193 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

A number decreased by 18 equals 40 percent of itself. Find the number.

10.194 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Two plans cost $18 + 4m$ and $30 + 2.5m$. Find the break-even month.

10.195 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Write the equation shown by the balance and solve.

$$\begin{array}{ccc} 3x + 5 & & 29 \\ \hline & | & \\ & \hline \end{array}$$

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10.196 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Create an equation with variables on both sides whose solution is -4 and whose coefficients are positive whole numbers.

10.197 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

Find all integer solutions to $3x + 5y = 42$ with x, y nonnegative.

10.198 Directions:

Complete all work on separate paper. Show calculations, reasoning, and labeled diagrams as appropriate..

A school orders identical calculator cases. The total cost is modeled by $6.75n + 42 = 312$. Solve for n , check by substitution, and explain what the fixed cost and the coefficient represent.