

Name: _____

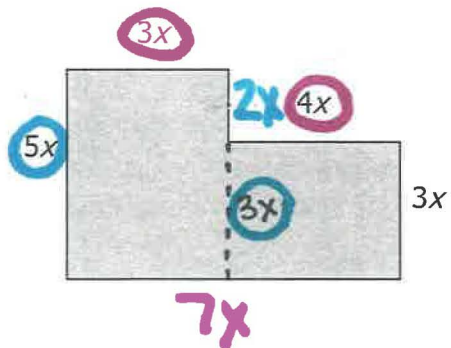
Unit 7 Test 1 Corrections

Complete the six re-test problems in the right column. Use the problems in the left column and the steps to solve to guide you. Try solving the basic problems first then the re-test problems.

Example Problem	Steps to Solve	Problem for You to Complete
<p>For all real numbers a and b, which of the following statements is always true?</p> <p>Let $a=3$. Let $b=5$.</p> <p>A. $(3a)^4 = 12a^4$ $(3(3))^4 = 6561$ $12(3)^4 = 972$</p> <p>B. $(a^4b^3)^2 = a^6b^5$ $((3)^4(5)^3)^2 = 102515625$</p> <p><u>C.</u> $(a^4)(a^3) = a^{4+3}$ $(3)^4(5)^3 = 2278125$</p> <p>D. $(4a^4)(b^4) = (4ab)^4$ $((3)^4)((5)^3) = 2187$</p> <p>$(4(3)^4)(5)^4 = 202500$ $(3)^{4+3} = 2187$</p> <p>$(4(3 \times 5))^4 = 12960000$</p>	<ol style="list-style-type: none"> Pick a number to plug into your variables. Check each equation with your calculator using the numbers you picked in step 1. Choose the answer choice that makes a TRUE statement with the plugged in numbers. 	<p>For all real numbers a and b, which of the following statements is always true?</p> <p>A. $(4s)^3 = 12s^3$</p> <p>B. $(s^2t^4)^3 = s^6t^{12}$</p> <p>C. $(s^3)(s^4) = s^{(3)(4)}$</p> <p>D. $(s^3)(3t^3) = (3st)^3$</p>
<p>Simplify: $(m+5)^2 = (m+5)(m+5)$</p> <p>A. $m^2 + 25$</p> <p><u>B.</u> $m^2 + 10m + 25$</p> <p>C. $2m + 10$</p> <p>D. $m^2 + 10$</p> <p> $\begin{array}{r rr} 1m & +5 \\ \hline 1m & 1m^2 & 5m \\ +5 & 5m & 25 \end{array}$ $\begin{array}{l} 1m^2 + 5m + 5m + 25 \\ \hline 1m^2 + 10m + 25 \end{array}$ </p>	<ol style="list-style-type: none"> Write out what it means to "be squared" (i.e. $4^2 = 4 \cdot 4$ and $7^2 = 7 \cdot 7$). Make a multiplication chart to find the product. Write your answer as an expression. Combine like terms. 	<p>Simplify: $(y-3)^2$</p> <p>A. $2y + 9$</p> <p>B. $y^2 - 6$</p> <p>C. $y^2 + 9$</p> <p>D. $y^2 - 6y + 9$</p>

Find the perimeter of the shaded region below.

- ~~A. $15x$~~
~~B. $22x$~~
 C. $24x$
~~D. $30x$~~

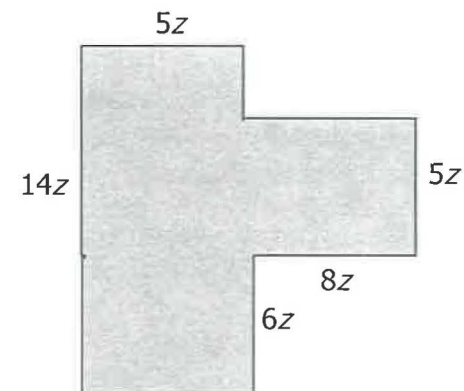


$$\text{Perimeter} = 5x + 3x + 2x + 4x + 3x + 7x \\ = 24x$$

1. Recall the meaning of perimeter (add all sides).
2. Identify the length of each side.
3. Use the provided lengths to find any missing lengths.
4. Add all sides.
5. Combine like terms.

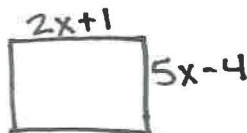
Find the perimeter of the shaded region below.

- A. $38z$
 B. $51z$
 C. $54z$
 D. $60z$



A rectangle has a length of $2x + 1$ and a width of $5x - 4$. Which expression best describes the area of the rectangle?

- ~~A. $7x - 3$~~
~~B. $14x - 6$~~
 C. $10x^2 - 3x - 4$
~~D. $10x^2 + 13x - 4$~~



$$A = lw = (2x + 1)(5x - 4)$$

	$2x$	$+1$
$5x$	$10x^2$	$5x$
-4	$-8x$	-4

$$A = 10x^2 + 5x - 8x - 4$$

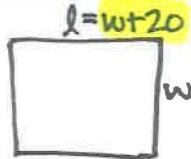
$$A = 10x^2 - 3x - 4$$

1. Draw a picture and label with the information from the problem.
2. Recall the formula for the area of a rectangle ($A = lw$).
3. Identify the length and the width. Plug these into the formula.
4. Make a multiplication chart to find the product.
5. Write your answer as an expression.
6. Combine like terms.

A rectangle has a length of $4x + 6$ and a width of $3x - 1$. Which expression best describes the area of the rectangle?

- A. $7x + 5$
 B. $14x + 10$
 C. $12x^2 + 22x - 6$
 D. $12x^2 + 14x - 6$

The length of a rectangular garden is 20 feet longer than the width, w . Which equation best describes the garden's perimeter, P ?



- ☒ A. $P = (w + 20) + w$
☐ B. $P = (w + 20)w$
☐ C. $P = (w + 20)2w$
☒ D. $P = 2(w + 20) + 2w$

$$P = 2l + 2w$$

$$P = 2(w + 20) + 2w$$

1. Draw a picture and label with the information from the problem.
2. Recall the formula for the perimeter of a rectangle ($P = 2l + 2w$).
3. Notice none of the answer choices have the variable l , so identify what you can use to substitute for l .
4. Substitute for l .

The width of a rectangular garden is 7 feet shorter than the length, l . Which equation best describes the garden's perimeter, P ?

- ☐ A. $P = l + (l - 7)$
☐ B. $P = 2l + 2(l - 7)$
☐ C. $P = 2l(l - 7)$
☐ D. $P = l(l - 7)$

Amanda was told to simplify the following polynomial expression completely: $(2x - 4)(x + 5) - (2x^2 + 20)$. Her work is shown below.

incorrect

multiplication chart

Problem: $(2x - 4)(x + 5) - (2x^2 + 20)$

Step 1: $2x^2 - 20 - (2x^2 + 20)$

Step 2: $2x^2 - 20 - 2x^2 - 20$

Step 3: -40

Where did the first mistake occur?

- ☒ A. Step 1
☐ B. Step 2
☐ C. Step 3
☐ D. No mistake was made

	$2x$	-4
$1x$	$2x^2$	$-4x$
$+5$	$10x$	-20

$$2x^2 - 4x + 10x - 20$$

$$2x^2 + 6x - 20$$

1. Identify the first operation to complete the provided problem.
2. Try it yourself!
3. Compare your first step with the first step in the problem.
4. If they match, identify the second operation to complete. Try it yourself!
5. Compare your second step with the second step in the problem.
6. If they match, continue this process. If they do not match, you have found the mistake!

Amanda was told to simplify the following polynomial expression completely: $(x + 3)(3x - 2) - (3x^2 - 5)$. Her work is shown below.

Problem: $(x + 3)(3x - 2) - (3x^2 - 5)$

Step 1: $3x^2 + 7x - 2 - (3x^2 - 5)$

Step 2: $3x^2 + 7x - 2 - 3x^2 - 5$

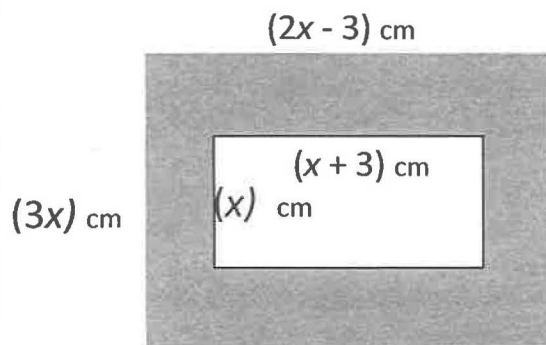
Step 3: $7x - 7$

Where did the first mistake occur?

- ☐ A. Step 1
☐ B. Step 2
☐ C. Step 3
☐ D. No mistake was made

Find the area, in simplest terms, of the shaded region.

- ☒ A. $5x^2 - 12x$
☐ B. $5x^2 - 6x$
☐ C. $6x^2 - 6x$
☐ D. $6x^2 - 12x$



Large Area = $lw = (3x)(2x-3)$

$$\begin{array}{r|l} & 3x \\ 2x & 6x^2 \\ -3 & -9x \end{array}$$

$= 6x^2 - 9x$

Small Area = $lw = (x)(x+3)$

$$\begin{array}{r|l} & 1x \\ 1x & 1x^2 \\ +3 & 3x \end{array}$$

$= 1x^2 + 3x$

Shaded Area = $(6x^2 - 9x) - (1x^2 + 3x)$

$$\begin{array}{r} 6x^2 - 9x \\ - 1x^2 - 3x \\ \hline 5x^2 - 12x \end{array}$$

- Find the area of the larger rectangle.
 - Recall the formula for the area of a rectangle ($A = lw$).
 - Identify the length and the width. Plug these into the formula.
 - Make a multiplication chart to find the product.
 - Write your answer as an expression.
 - Combine like terms.
- Find the area of the small rectangle.
 - Recall the formula for the area of a rectangle ($A = lw$).
 - Identify the length and the width. Plug these into the formula.
 - Make a multiplication chart to find the product.
 - Write your answer as an expression.
 - Combine like terms.
- Shaded Area = (Large Area) - (Small Area)

Find the area, in simplest terms, of the shaded region.

- A. $-2x^2$
 B. $-2x^2 + 4x$
 C. $10x^2$
 D. $10x^2 + 4x$

