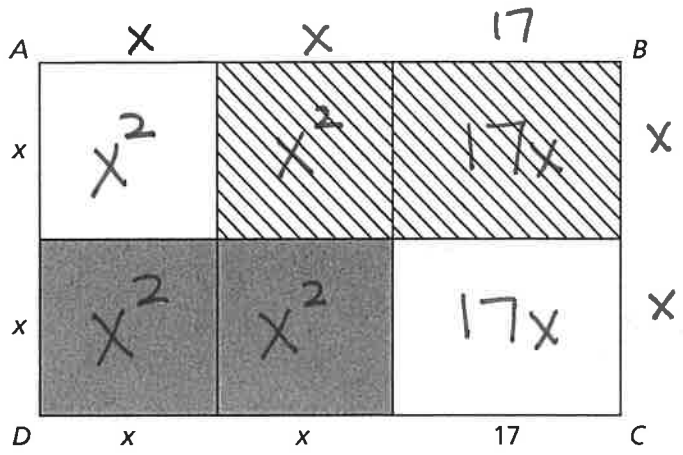
Name _____ Date _____ Class _____

Additional Practice

Investigation 2

Frogs, Fleas, and Painted Cubes

1. Refer to the diagram below to answer parts (a)–(f).



a. Write an expression for the area of the diagonally shaded region.

x^2+17x

b. Write an expression for the area of the gray region.

$2x^2$

c. Write an expression for the total area of the white regions.

x^2+17x

d. Write an expression for the difference in areas between the diagonally shaded region and the gray region.

$x^2+17x-2x^2 = 17x-x^2$

e. Write an expression for the perimeter of rectangle $ABCD$.

$x+x+x+x+17+x+x+17+x+x = 8x+34$

f. Write an expression for the area of rectangle $ABCD$.

$4x^2+34x$

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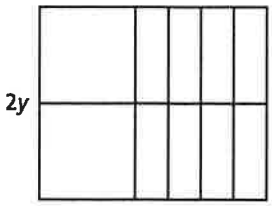
Skill: Writing Expressions in Expanded Form

Investigation 2

Frogs, Fleas, and Painted Cubes

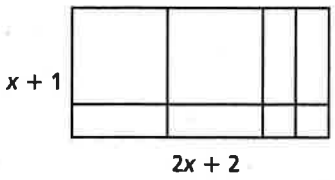
Find the area of each rectangle.

1.



$2y(y+4) = 2y^2 + 8y$

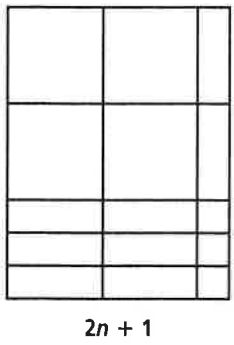
2.



$(x+1)(2x+2)$

$2x^2 + 4x + 2$

3.



$(2n+3)(2n+1)$

$4n^2 + 8n + 3$

Use the Distributive Property to write each expression in expanded form.

4. $x(x+2)$

$x^2 + 2x$

5. $3b(b-5)$

$3b^2 - 15b$

6. $2x^2(x+9)$

$2x^3 + 18x^2$

7. $2(a^2+8a+1)$

$2a^2 + 16a + 2$

8. $2x^2(4x+1)$

$8x^3 + 2x^2$

9. $3l(l^2+4l-6)$

$3l^3 + 12l^2 - 18l$

10. $(x+2)(x+3)$

$x^2 + 5x + 6$

11. $(x+5)(x+1)$

$x^2 + 6x + 5$

12. $(x+4)(x+5)$

$x^2 + 9x + 20$

13. $(x+7)(x+2)$

$x^2 + 9x + 14$

14. $(x+1)(x-6)$

$x^2 - 5x - 6$

15. $(x+8)(x-3)$

$x^2 + 5x - 24$

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Skill: Factoring Expressions

Investigation 2

Frogs, Fleas, and Painted Cubes

Use the Distributive Property to factor each expression.

1. $x^2+8x+16$ $(x+4)(x+4)$

2. d^2+8d+7 $(d+7)(d+1)$

3. y^2+6y+8 $(y+4)(y+2)$

4. b^2-2b-3 $(b-3)(b+1)$

5. s^2-4s-5 $(s-5)(s+1)$

6. $x^2+12x+32$ $(x+8)(x+4)$

7. $x^2-9x+20$ $(x-4)(x-5)$

8. x^2-5x+6 $(x-3)(x-2)$

9. a^2+3a+2 $(a+2)(a+1)$

10. p^2-8p+7 $(p-7)(p-1)$

11. d^2+6d+5 $(d+5)(d+1)$

12. n^2+n-6 $(n+3)(n-2)$

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Skill: Graphs of Parabolas

Investigation 2

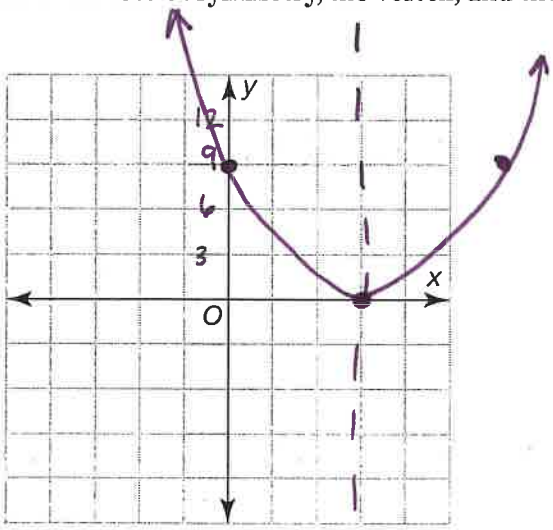
Frogs, Fleas, and Painted Cubes

Graph each function. Label the axis of symmetry, the vertex, and the *y*-intercept.

1. $y = x^2 - 6x + 9$

$0 = (x-3)(x-3)$

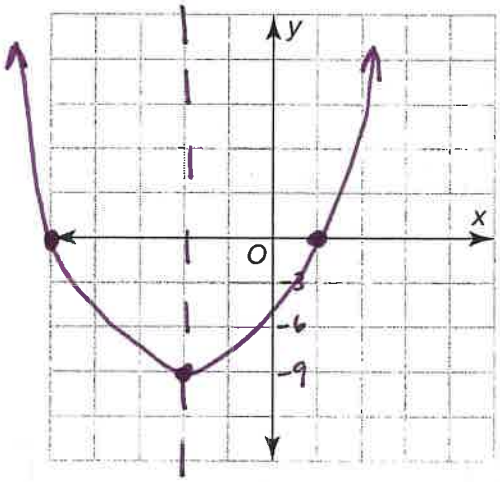
$x = 3$



2. $y = x^2 + 4x - 5$

$0 = (x+5)(x-1)$

$x = -5 \quad x = 1$



$x = -2$

$y = (-2)^2 + 4(-2) - 5$

$y = 4 + -8 - 5$

$y = -9$

$(-2, -9)$

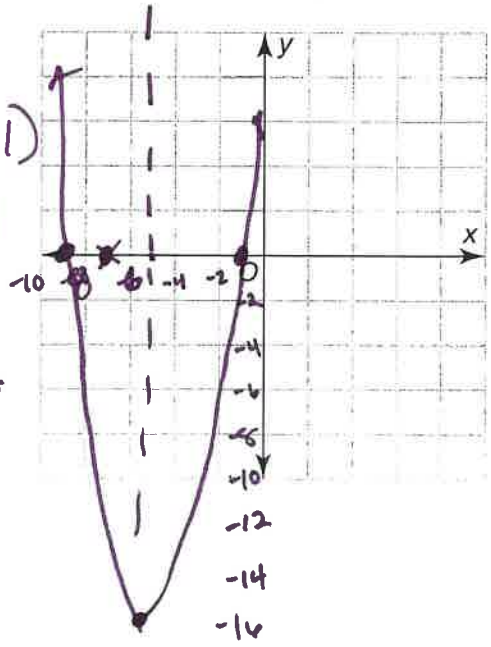
3. $y = x^2 + 10x + 9$

$0 = (x+9)(x+1)$

$x = -9 \quad x = -1$

$\frac{-9 + -1}{2} = \frac{-10}{2} =$

$x = -5$



$y = (-5+9)(-5+1)$

$y = (4)(-4)$

$y = -16$