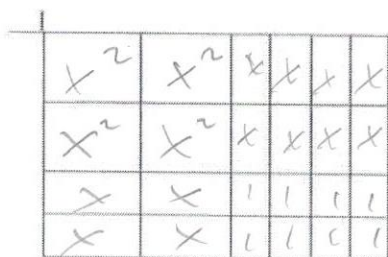




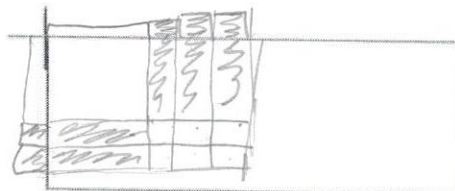
7. Which polynomial is represented by the below diagram?



Answer:  $4x^2 + 12x + 8$  ✓

8. Use the area model to find the length and width (factors).

Area =  $x^2 - 5x + 6$



$(x-2)(x-3)$  ✓

Length:  $x-3$

Width:  $x-2$

9. Multiply the following binomials.

FOIL  $(2x-3)(4+6x)$

$8x + 12x^2 - 12 - 18x$

$= 12x^2 - 10x - 12$  ✓

Answer:  $8x + 12x^2 - 12 - 18x$   
combine like terms.

10. Divide the following monomials. \* exponent law

$\frac{4x^2y^2}{2xy}$  \* cancel exponents

$\frac{4xy^2}{2}$

$x^{2-1} = x$   
 $y^{2-1} = y$

Answer:  $\frac{2xy^2}{1} = 2xy^2$  ✓

11. Simplify the following expression.

\* expand each

$2(3x-5y) - 6(y+2x)$

$6x - 10y - 6y - 12x$  ✓

\* combine like terms.

Answer:  $-6x - 16y$  ✓

12. Simplify the following expression.

$3(5s-t) + (s+6)$

$15s - 3t + s + 6$

Answer:  $16s - 3t + 6$  ✓

1. The first step in factoring is factor out the GCF.  
 Then you have to check if there is a pattern based on the number of terms (see Flow chart)  
 If Possible, Factor the following Polynomials. Be sure to factor completely!

<p>2. <math>3y - 9</math></p> <p><math>3(y-3)</math> ✓</p>	<p>3. <math>24z^2 - 6z + 3zy</math></p> <p><math>3(8z^2 - 2z + zy)</math></p> <p><math>3z(8z - 2 + y)</math> ✓</p>
<p>4. <math>2xy - 30x^2 + 8xz</math></p> <p><math>2(xy - 15x^2 + 4xz)</math></p> <p><math>2x(y - 15x + 4z)</math> ✓</p>	<p>5. <math>y^2 - 2y + 1</math> *perfect square trinomial</p> <p><math>(y-1)(y-1)</math> ✓ = <math>(y-1)^2</math></p> <p><del><math>y^2 - 1y - 1y + 1</math></del></p> <p><del><math>y^2 - 2y + 1</math></del></p>
<p>6. <math>9a^3 + 27b^2</math></p> <p><math>9(a^3 + 3b^2)</math></p> <p><math>9(a^3 + 3b^2)</math></p>	<p>7. <math>y^2 - y - 20</math></p> <p><math>(y+4)(y+5)</math></p> <p><math>y^2 - 5y + 4y - 20</math></p> <p><math>y^2 - y - 20</math></p>

8.  $x^2 + 2x + 5$

Cannot be factored

9.  $5y^2 + 40y + 60$

$5(y+10)(y+6)$

$5y^2 + 30y + 10y + 60$

$5y^2$	$10$
$6$	$60$

$20 \cdot 3$   
 $15 \cdot 4$   
 $30 \cdot 2$   
 $10 \cdot 6$

$5(y+2)(y+6)$

10.  $5x(a+b) + 3(a+b)$

$(5x+3)(a+b)$

11.  $3y(x-y) - 1(y-x)$

$-1(-x+y)$

$3y(x-y) - 1 \cdot -1(x-y)$   
 $+1(x-y)$

$(3y+1)(x-y)$

12.  $x^2 + x^2 - xy - y$

$x(x+1) + y(-x-1)$

$x(x+1) + y \cdot -(x+1)$

$x(x+1) - y(x+1)$

$(x-y)(x+1)$

13.  $5t^2 + 7t + 2$

$5t$	$5t^2$	$5t$
$t+2$	$2t$	$t+2$

$+10t^2$   
 $1 \cdot 10$   
 $2 \cdot 5t$

$(5t+2)(t+1)$

14.  $5m^2 - 11m + 2$

$(5m-1)(m-2)$

$5m^2 - 10m - 1m + 2$

$5m$	$5m^2$	$-10$
$1$	$1$	$2$

15.  $6a^2 + 14ab - 12b^2$

$2(3a-2b)(a+3b)$

$6a^2 + 18ab - 4ab - 12b^2$

$6a^2 + 14ab - 12b^2$

$2(3a-2b)(a+3b)$

$6a$	$6a^2$	$18$
$4b$	$4$	$12b^2$

$72$   
 $1 \cdot 72$   
 $2 \cdot 36$   
 $3 \cdot 24$   
 $4 \cdot 18$

$\frac{10}{-10}$

$$\begin{array}{r|l} 2m & 2m^2 - 6 \\ \hline 2n & 2 \quad 6n^2 \end{array}$$

$$\begin{array}{r} 1.2 \\ 2.6 \\ 3.4 \\ 4.3 \\ 5.2 \end{array}$$

16.  $2m^2 - 4mn - 6n^2$

$2(m+n)(m-3n)$

$2(m+2n)(m-3n)$

$2m^2 - 6mn + 2mn - 6n^2$

$2m^2 - 4mn - 6n^2$

17.  $y^2 - 9$

$(y-3)(y+3)$

18.  $16x^2 + 16x + 4$

$4(4x+4)(2x+1)$

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

19.  $81x^2 - 144$

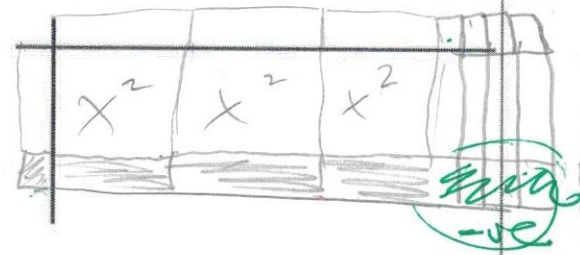
$(9x-12)(9x+12)$

$81x^2 + 108x - 108x - 144 = -144$

20. Factor  $3x^2 + x - 4$  using algebra tiles.

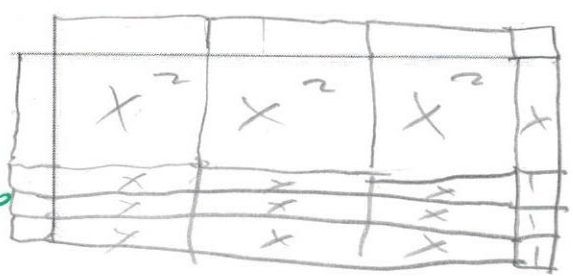
$(3x+4)(x-1)$

$3x^2 - 3x + 4x - 4$



Factors  $(3x+4)(x-1)$

21. One factor of the polynomial  $3x^2 + 10x + 3$  is  $x+3$ , use algebra tiles to determine the other factor.



Factor  $(x+3)(3x+1)$