NO CALCULATOR - computers closed

1. What is the axis of symmetry for $y = x^2 - 4x + 4$?

a b c

$x = \frac{-b}{2a}$ $\frac{4}{2(1)} = \frac{4}{2}$ $x = 2$

2. What is the vertex?

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

$4 - 8 + 4$

$-4 + 4$

x y

$(2, 0)$

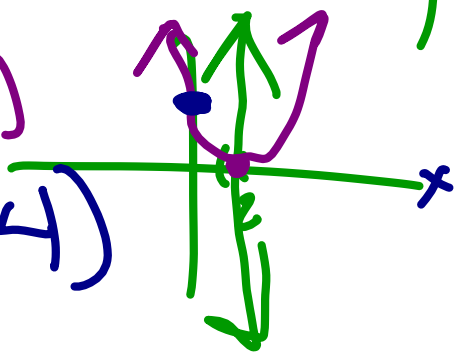
3. What is the y-intercept?

$0^2 - 4(0) + 4$

$0 - 0 + 4$

4

$(0, 4)$



$y = -\frac{1}{2}x + 3$

Calculator Inactive Station 1 - 15 minutes

(1) $6x - 5y < -10$

(0,y) (x,0)

$-6x \quad -6x$

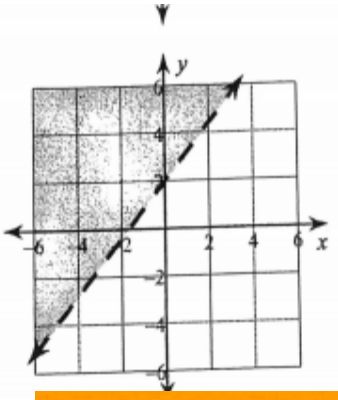
$-5y < -10 - 6x$

$\frac{-5y}{-5} < \frac{-10}{-5} - \frac{6x}{-5}$ flip

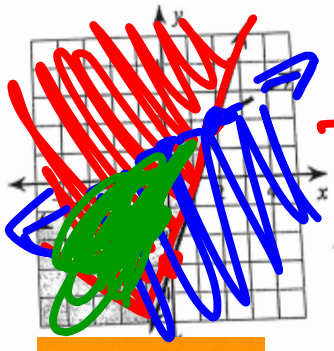
$y > 2 + \frac{6}{5}x$

Check

5)



6)



5) $6x - 5y < -10$

$-6x \quad -6x$

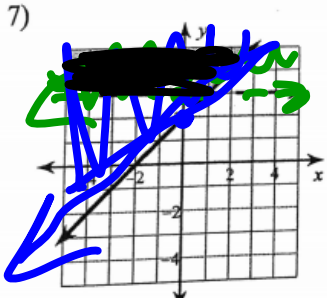
$\frac{-5y}{-5} < \frac{-10-6x}{-5}$ FLIP

$y > 2 + \frac{6}{5}x$

6) $y \geq \frac{5}{2}x - 3$

$y < \frac{1}{2}x + 1$

7)

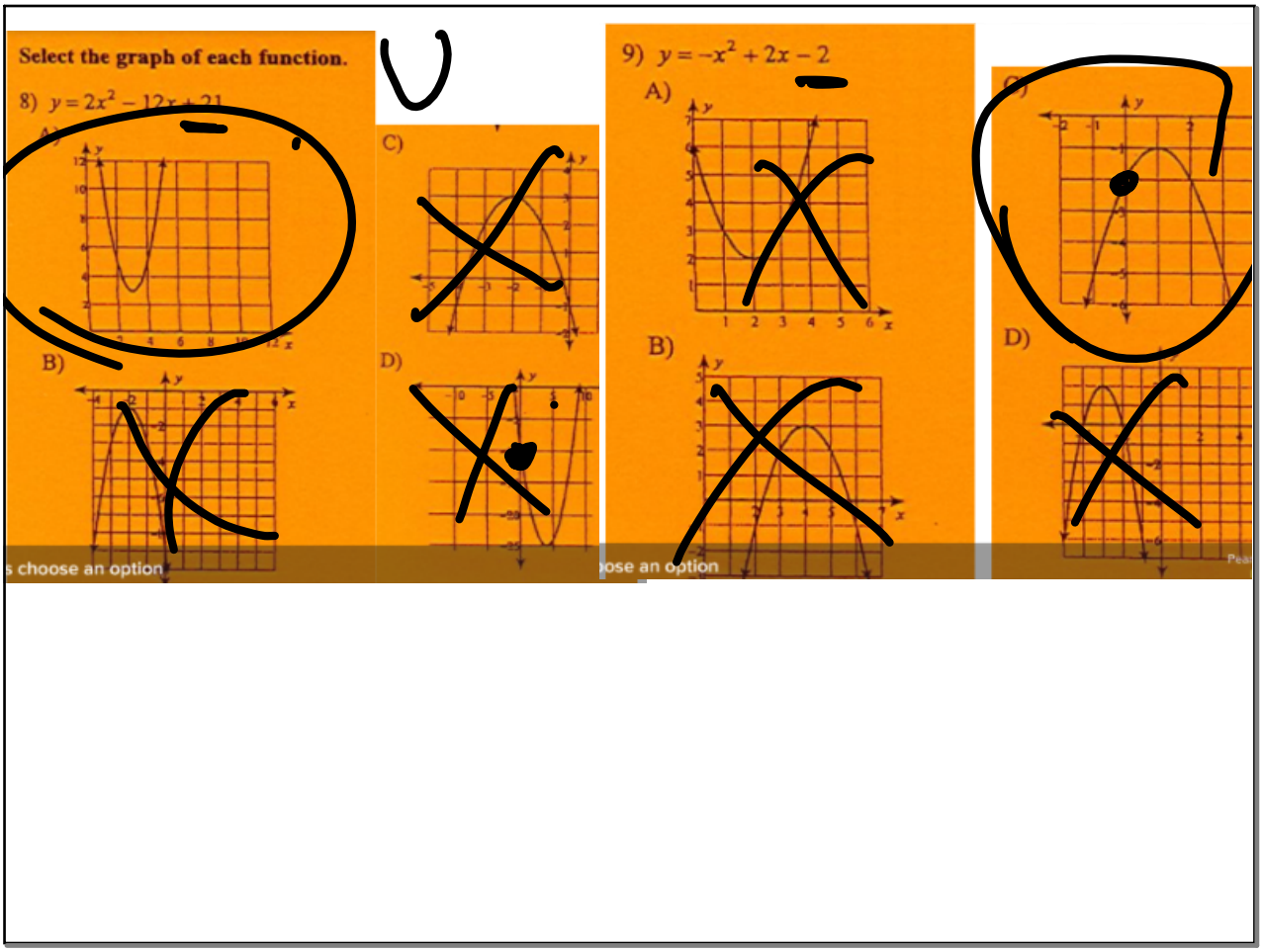


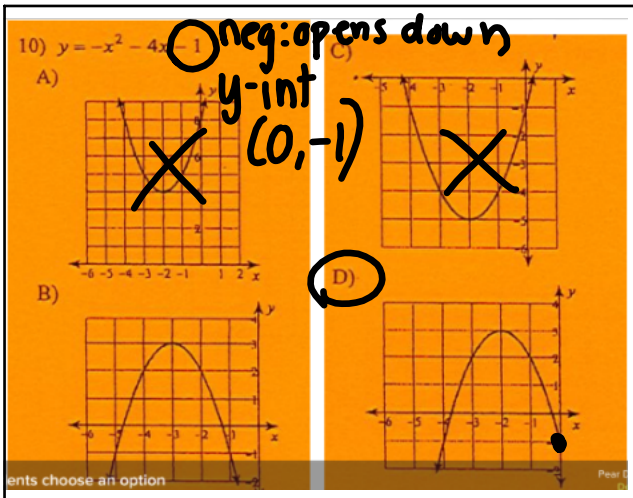
7) $y > 3$

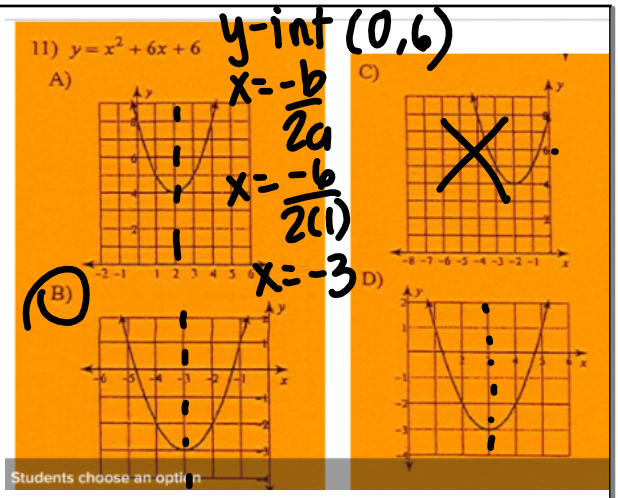
$y \geq \frac{1}{2}x + 2$

$0x$

$y > 3$



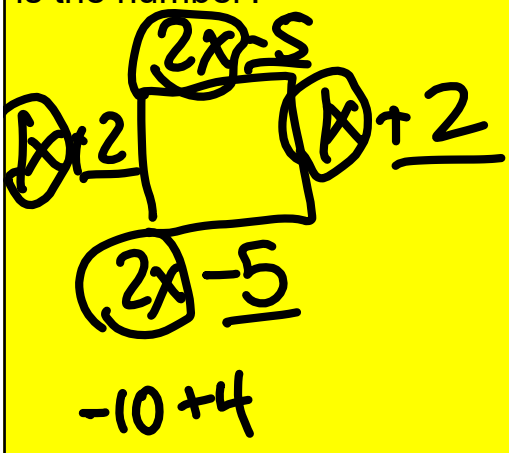




Station 3 - 25 minutes

Let's do #1 together:

1. The perimeter of a rectangle is 54cm. If the length is 2 cm more than a number, and the width is 5cm less than twice the same number, what is the number?

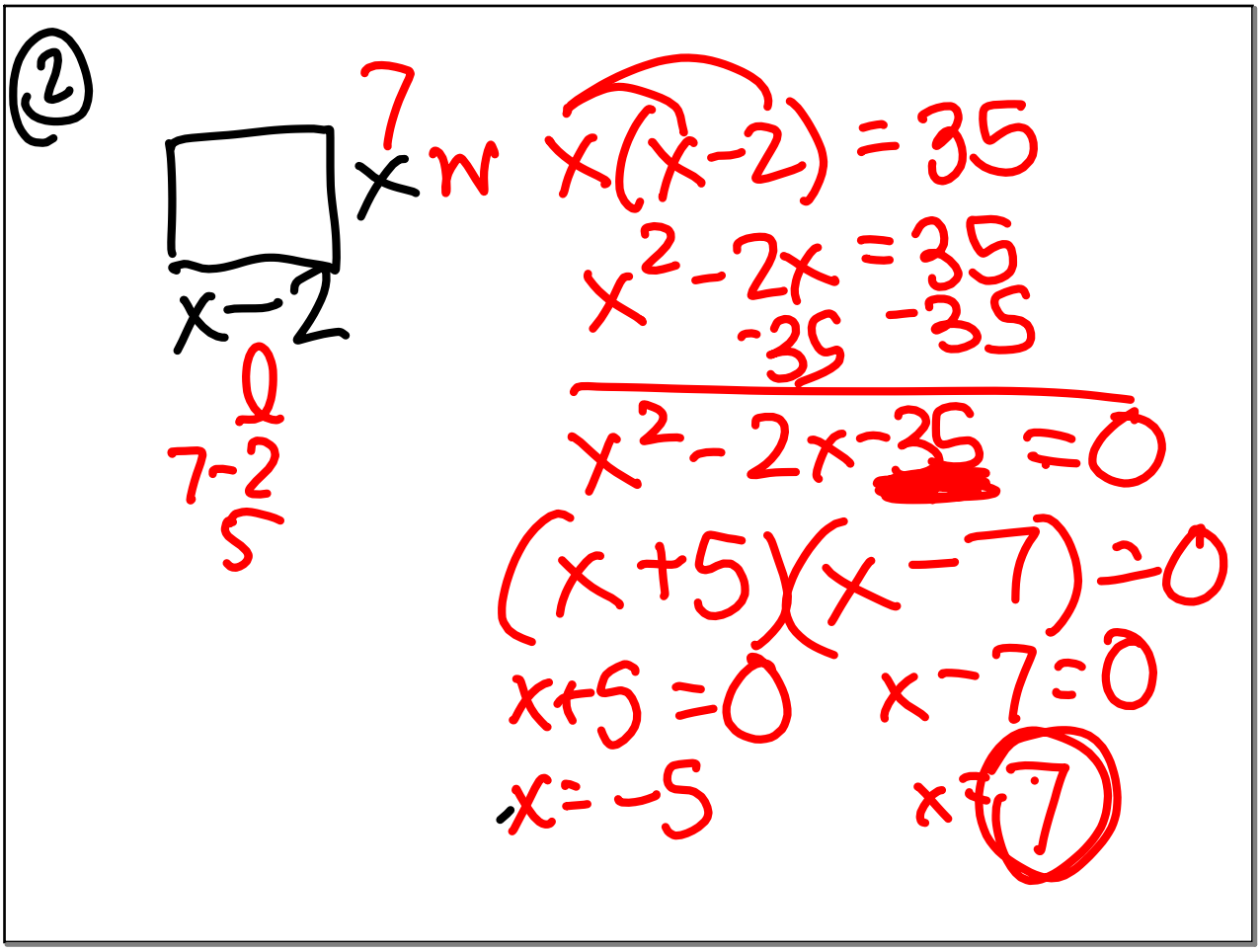


$6x-6=54$

$+6 \quad +6$

$\frac{6x}{6}=\frac{60}{6}$

$x=10$



x+2

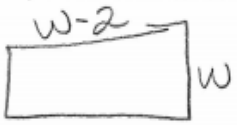
6x=60

x=10

12+12+15+15=54

Check

2. The length of a rectangle is 2 cm less than its width. If the area of the rectangle is 35 cm2 , find the width.



$w(w-2)=35$

$w^2-2w-35=0$

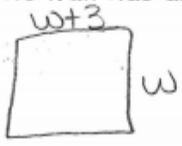
$(w-7)(w+5)$

$w=7$ ~~$w=-5$~~

$7-2=5$

$5 \times 7 = 35$ ✓

3. A student is painting an accent wall in his room where the length of the wall is 3 ft. more than its width. The wall has an area of 130 ft². What are the length and the width, in feet?



$w(w+3)=130$

$w^2+3w-130=0$

$(w+13)(w-10)$

~~$w=-13$~~ $w=10$

$10 \times 13 = 130$ ✓

4. The length of a rectangle is 4 cm more than 2 times its width. If the area of

4. The length of a rectangle is 4 cm more than 3 times its width. If the area of the rectangle is 15 cm^2, find the width.

$w(3w+4) = 15$

$3w^2+4w-15=0$

$3w(w+3)-5(w+3)$

$(3w-5)(w+3)$

$3w-5=0$ $\quad w+3=0$

$+5 \quad 5 \quad\quad w=-3$

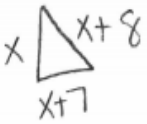
$\frac{3w}{3}=\frac{5}{3}$

$w=\frac{5}{3}$

$3(\frac{5}{3})+4=9$

$9(\frac{5}{3})=15$ ✓

5. One leg of a right triangle is seven more than the other leg. The hypotenuse is eight more than the shorter leg. Find the lengths of the three sides of the triangle.



$x^2+x^2+14x+49=x^2+16x+64$

$-x^2-16x-64=0$

$x^2-2x-15=0$

$(x-5)(x+3)$

$x=5 \quad x=-3$

5, 12, 13

$5^2+12^2=13^2$

$25+144=169$

$169=169$ ✓

Homework - Station 4

Station 4

Answers to Multiplying Polynomials (ID: 1) Key

1) $2p^2 + 6p - 14$
2) $24n^2 + 4n - 20$
3) $12p^3 + 28p^2 + 10p + 4$
4) $35n^3 + 29n^2 + 13n + 3$
5) $42p^2 - 84p + 42$
6) $28b^2 + 36b + 8$
7) $48r^2 - 40r - 8$
8) $4x^2 - 1$
9) $n^2 - 49$
10) $x^2 - 4x + 4$
11) $64n^2 - 4$
12) $25n^2 + 80n + 64$
13) $4k^2 - 4k + 1$
14) $4x^2 + 20x + 25$