Unit 5 Part 1

Lesson 5

Solving Equations by Factoring

Lesson 8 → Solving Equations by Factoring

➢ **Solve each equation:**

1. $x + 5 = 8$ $-5 \quad -5$ $x = 3$ $x =$ 3	2. $x - 6 = -9$ $+6 \quad +6$ $x = -3$ $x =$ -3	3. $2x + 4 = 10$ $-4 \quad -4$ $\frac{2x}{2} = \frac{6}{2}$ $x = 3$ $x =$ 3	4. $5x - 1 = 9$ $+1 \quad +1$ $\frac{5x}{5} = \frac{10}{5}$ $x = 2$ $x =$ 2

➢ **Solve each set of equations:**

5. $(x-5)(x+3)=0$

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

$+5\ +5$ $\quad$ $-3\ -3$

$x=5$ $\quad$ $x=-3$

$x=$ $-3, 5$

6. $(2x+1)(x+6)=0$

$2x+1=0$ $\quad$ $x+6=0$

$-1\ -1$ $\quad$ $-6\ -6$

$\frac{2x}{2}=\frac{-1}{2}$ $\quad$ $x=-6$

$x=$ $-\frac{1}{2}, -6$

7. $(2x-1)(5x+3)=0$

$2x-1=0$ $\quad$ $5x+3=0$

$+1\ +1$ $\quad$ $5x=-3$

$\frac{2x}{2}=\frac{1}{2}$ $\quad$ $x=-\frac{3}{5}$

$x=\frac{1}{2}$

$x=$ $\frac{1}{2}, -\frac{3}{5}$

8. $x^2 + 7x + 12 = 0$

$(x+3)(x+4)=0$

$x+3=0$ $\quad$ $x+4=0$

$x=-3$ $\quad$ $x=-4$

$x =$ $-3, -4$

9. $x^2 - 6x + 8 = 0$

$(x-2)(x-4)=0$

$x-2=0$ $\quad$ $x-4=0$

$x=2$ $\quad$ $x=4$

$x =$ $2, 4$

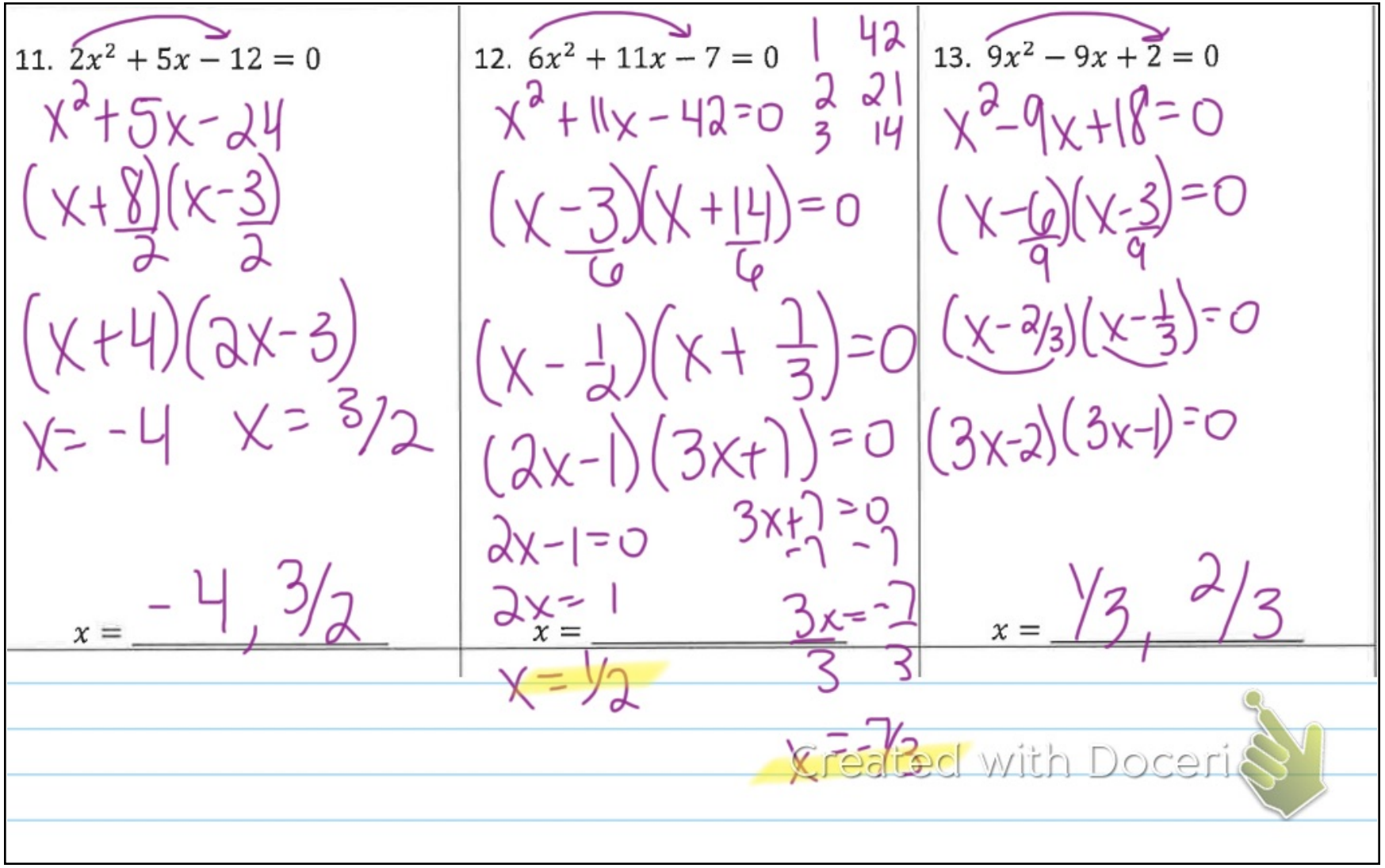
10. $x^2 + 2x - 24 = 0$

$(x+6)(x-4)=0$

$x=-6$ $\quad$ $x=4$

$4, -6$

$x =$ $-6, 4$


11. $2x^2 + 5x - 12 = 0$
$x^2+5x-24$
$(x+\frac{8}{2})(x-\frac{3}{2})$
$(x+4)(2x-3)$
$x=-4 \quad x=3/2$
$x = -4, 3/2$
12. $6x^2 + 11x - 7 = 0$
1 42
2 21
3 14
$x^2+11x-42=0$
$(x-\frac{3}{6})(x+\frac{14}{6})=0$
$(x-\frac{1}{2})(x+\frac{7}{3})=0$
$(2x-1)(3x+7)=0$
$2x-1=0$
$2x=1$
$x=1/2$
$3x+7=0$
$-7 \quad -7$
$\frac{3x}{3}=\frac{-7}{3}$
$x=-7/3$
$x =$
13. $9x^2 - 9x + 2 = 0$
$x^2-9x+18=0$
$(x-\frac{6}{9})(x-\frac{3}{9})=0$
$(x-2/3)(x-1/3)=0$
$(3x-2)(3x-1)=0$
$x = 1/3, 2/3$
Created with Doceri

$3x - 2 = 0$

$+2 \quad +2$

$\frac{3x}{3} = \frac{2}{3}$

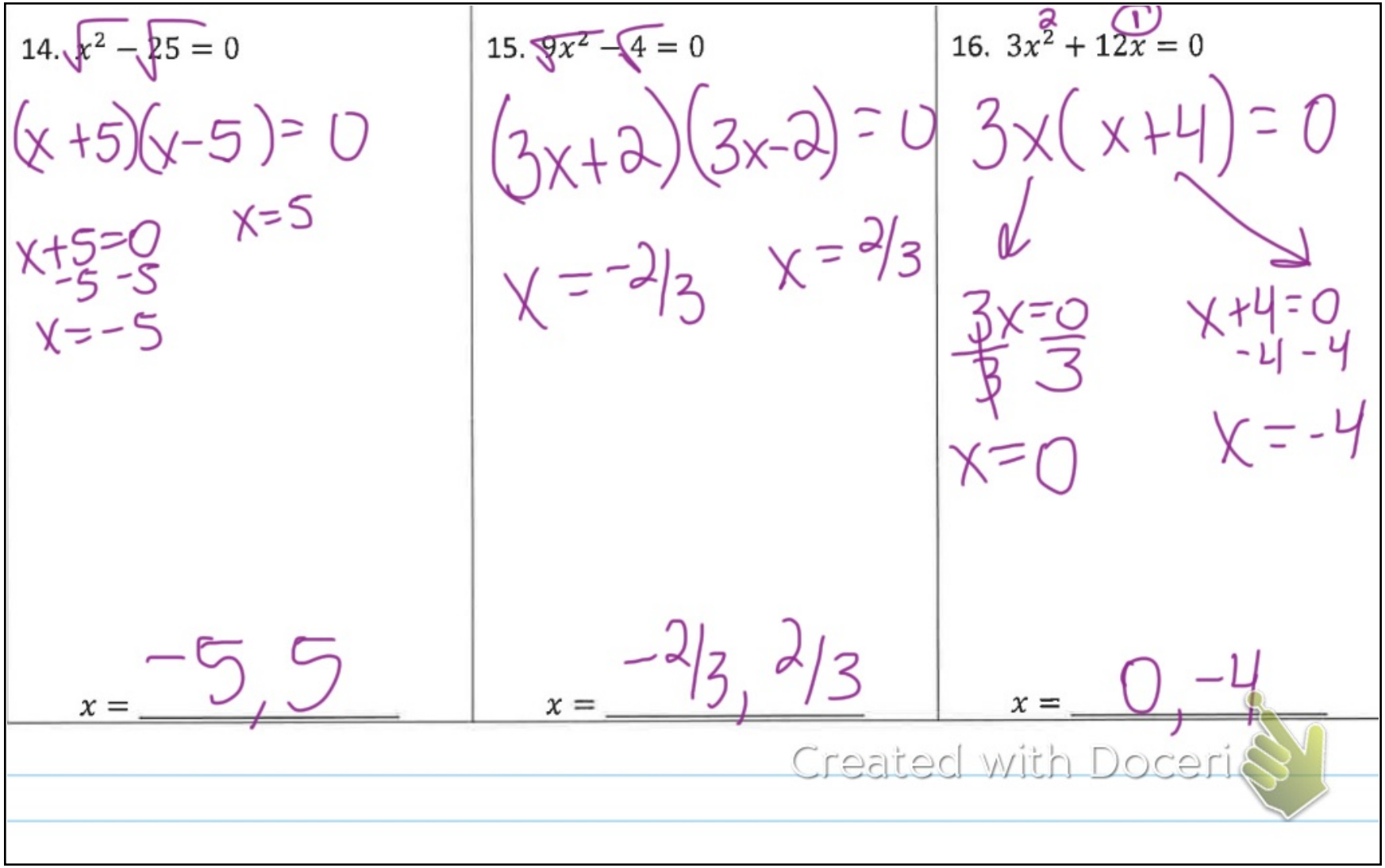
$x = 2/3$

$3x - 1 = 0$

$+1 \quad +1$

$\frac{3x}{3} = \frac{1}{3}$

$x = 1/3$


14. $x^2 - 25 = 0$
$(x+5)(x-5)=0$
$x+5=0$
$-5\ -5$
$x=-5$
$x=5$
$x = -5, 5$
15. $9x^2 - 4 = 0$
$(3x+2)(3x-2)=0$
$x=-2/3$
$x=2/3$
$x = -2/3, 2/3$
16. $3x^2 + 12x = 0$
$3x(x+4)=0$
$\frac{3x}{3}=\frac{0}{3}$
$x=0$
$x+4=0$
$-4\ -4$
$x=-4$
$x = 0, -4$
Created with Doceri

17. $2x^2 = 6x$

$-6x \quad -6x$

$2x^2 - 6x = 0$

$2x(x-3) = 0$

$x =$ 0, 3

18. $3x^2 - 7x - 6 = 0$

$x =$ _____

19. $5x^2 - x - 4 = 0$

$x =$ _____

20. $4x^2 + 7x = 2$

$-2 \quad -2$

$4x^2 + 7x - 2 = 0$

$x^2 + 7x - 8 = 0$

$(x+8)(x-1) = 0$

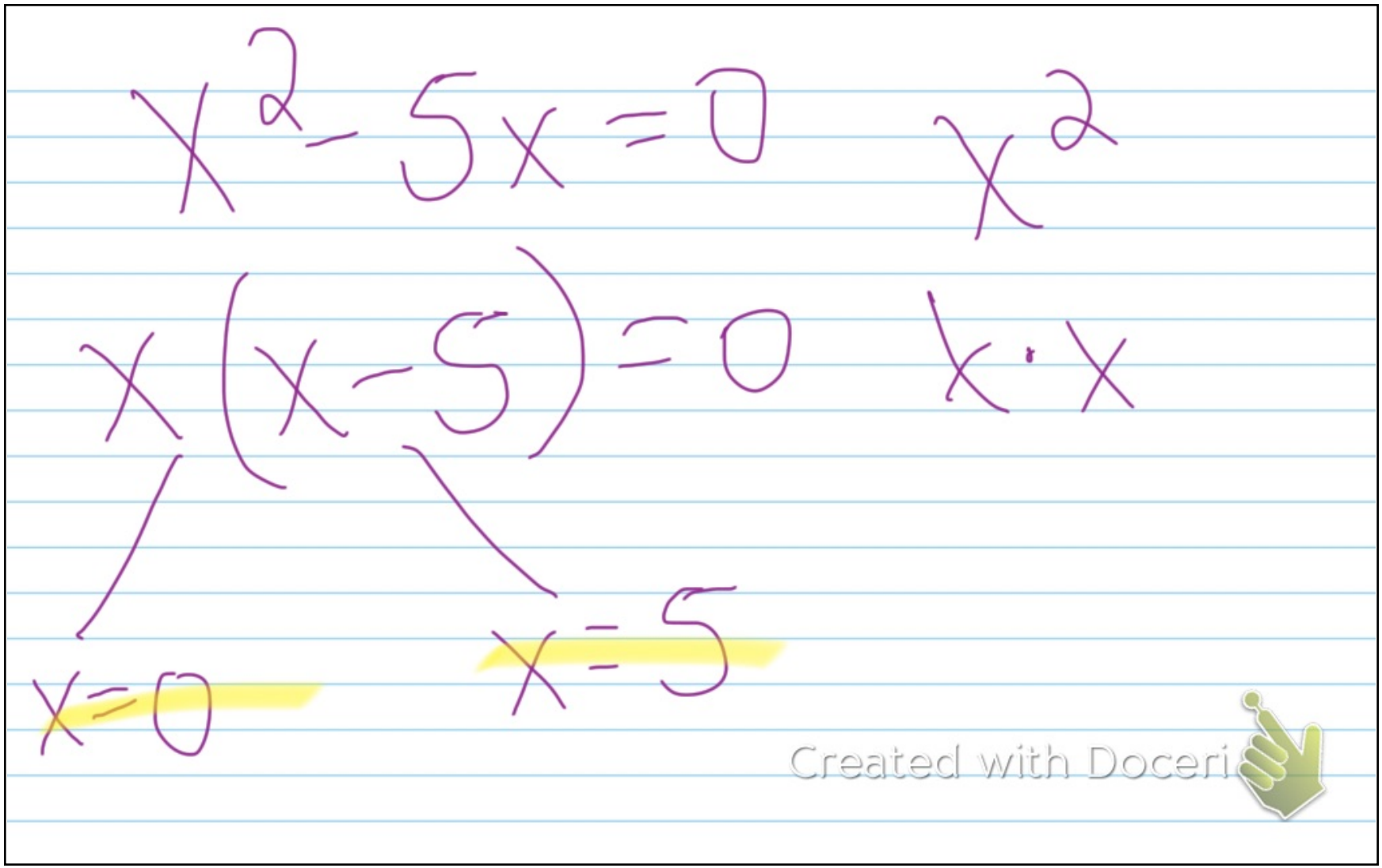
$(x+2)(4x-1)$

$-8, 1$

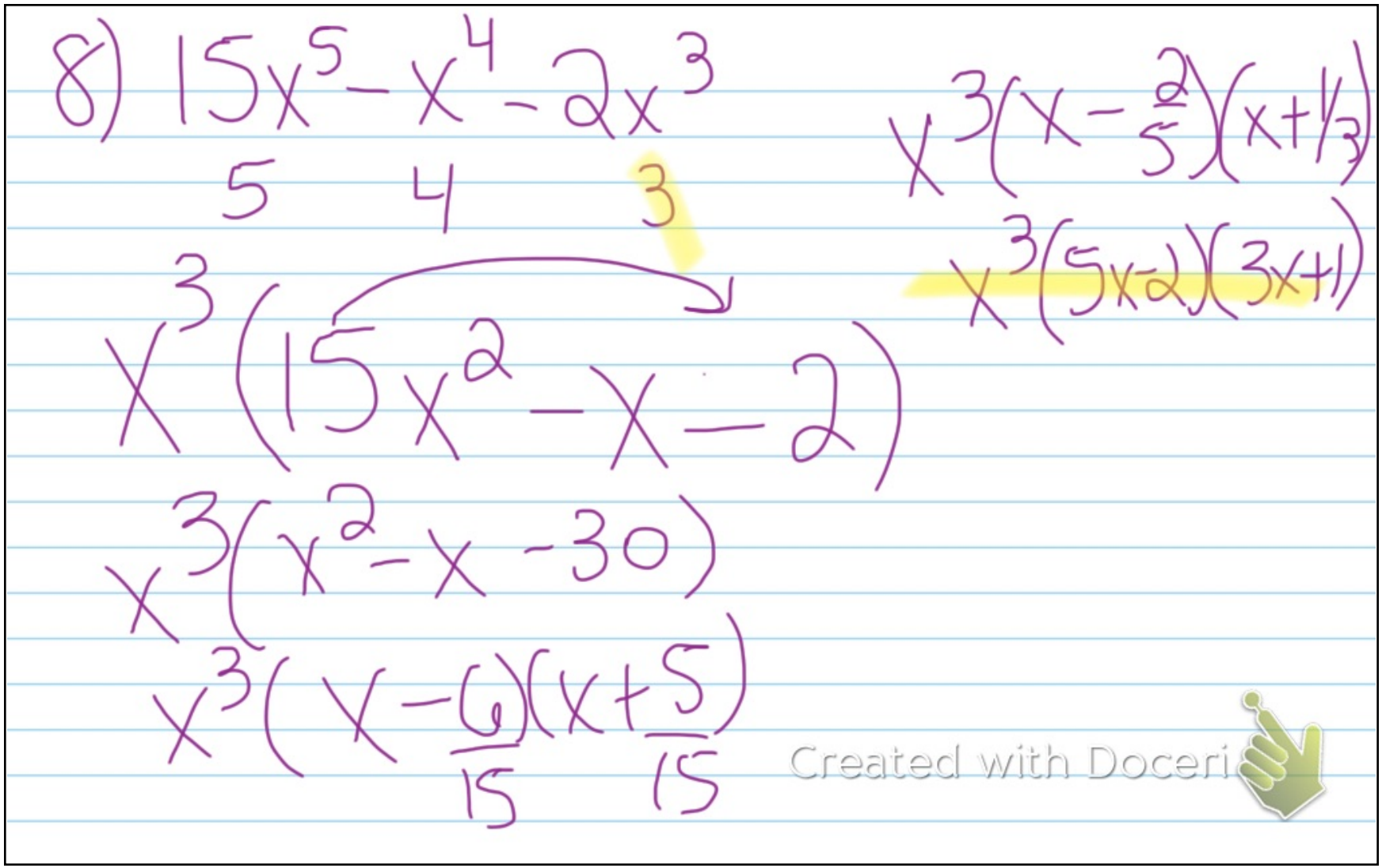
$\frac{-8}{4}, \frac{1}{4}$

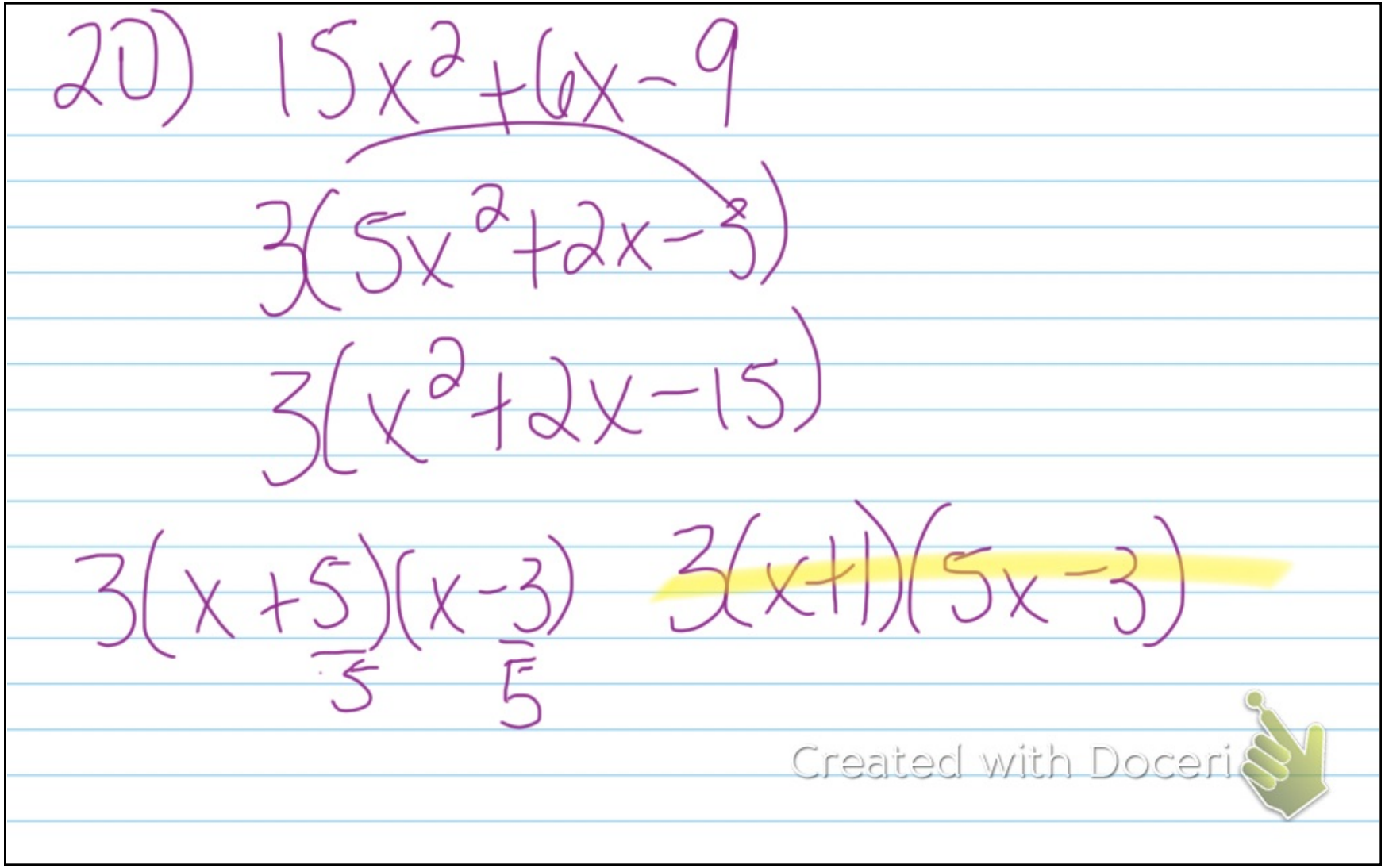
$-2, \frac{1}{4}$

$x =$ _____


$x^2 - 5x = 0$
x^2
$x(x-5) = 0$
$x \cdot x$
$x = 0$
$x = 5$
Created with Doceri

Page 19


8) $15x^5 - x^4 - 2x^3$
5 4 3
$x^3(15x^2 - x - 2)$
$x^3(x^2 - x - 30)$
$x^3(x - \frac{6}{15})(x + \frac{5}{15})$
$x^3(x - \frac{2}{5})(x + 1/3)$
$x^3(5x - 2)(3x + 1)$
Created with Doceri


20) $15x^2+6x-9$
$3(5x^2+2x-3)$
$3(x^2+2x-15)$
$3(x+5)(x-3)$
$3(x+1)(5x-3)$
5
5
Created with Doceri

10) $2x^4 - 32$

$2(x^4 - 16)$

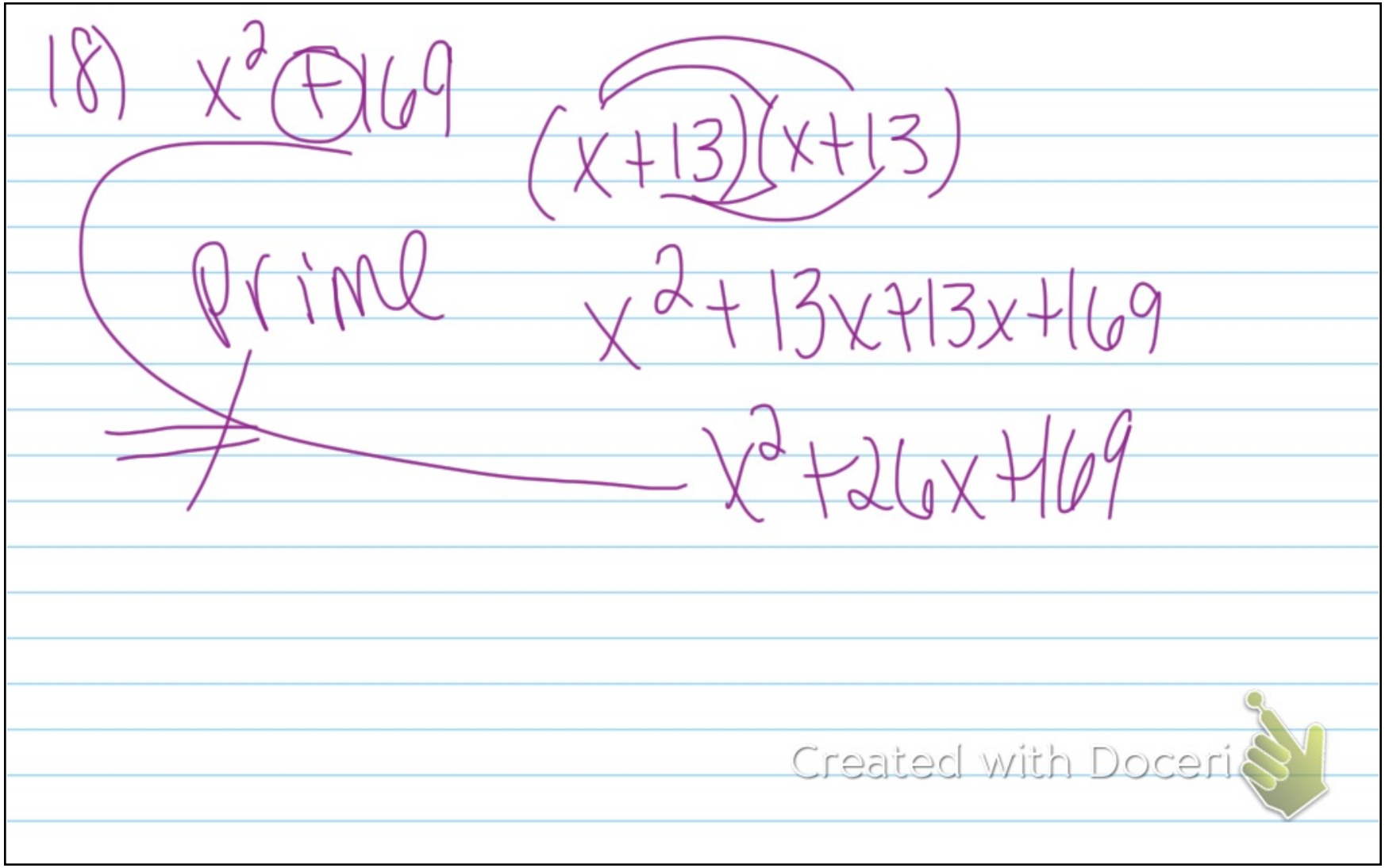
$2(x^2 - 4)(x^2 + 4)$

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

13) $4-9\sqrt{12}$

$(2-3\sqrt{6})(2+3\sqrt{6})$

~~$(3\sqrt{6}+2)(3\sqrt{6}-2)$~~


18) x^2+169
Prime
$(x+13)(x+13)$
$x^2+13x+13x+169$
$x^2+26x+169$
Created with Doceri

14) $45x^4 + 15x^6 - 75x^2$

$15x^2(3x^2 + x^4 - 5)$

$3x^2 - 12x + 9$

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

$3(x-3)(x-1)$