

Bell Ringer

Tuesday 11/6

Write each of the following functions in factored form and identify the x-intercepts:

1. $y = x^2 - 6x + 5$

Handwritten work for problem 1:

- Diagram of a parabola opening upwards with x-intercepts at 1 and 5. A vertical dashed line is drawn at $x=3$.
- Factored form: $y = (x-1)(x-5)$
- Setting each factor to zero: $x-1=0$ and $x-5=0$
- Solving for x: $x=1$ and $x=5$
- Handwritten numbers: -1 , -5 , -6 with arrows indicating the process of finding factors.

3. $-8x = y - x^2 - 15$

2. $y - 3 = 2x^2 + 5x - 6$

Handwritten work for problem 2:

- Diagram of a parabola opening upwards with x-intercepts at -3 and 1/2. A vertical dashed line is drawn at $x=2$.
- Factored form: $y = (x+3)(2x-1)$
- Setting each factor to zero: $x+3=0$ and $2x-1=0$
- Solving for x: $x=-3$ and $x=1/2$
- Handwritten numbers: $+3$, -6 , -1 , $+5$ with arrows indicating the process of finding factors.

4. $y = 3x^2 - 7x - 6$

$$i$$
$$i \cdot i = i^2 = -1$$
$$\sqrt{-1} = i$$

WHITEBOARD REVIEW FROM YESTERDAY

8.

$$\sqrt{-\frac{16}{25}} = \frac{4}{5}i$$

$$\left(\frac{4}{5}i\right)\left(\frac{4}{5}i\right) = \frac{16}{25}i^2 = \frac{16}{25}(-1) \\ = -\frac{16}{25}$$

10.

$$\sqrt{-28} = 2i\sqrt{7}$$

$\sqrt{4} \sqrt{7}$
 $2 \cdot 2$

13.

$$5\sqrt{8}$$

$$5i\sqrt{8} \quad 2\sqrt{2}$$

$\times 2 = 10i\sqrt{2}$

$(2 \ 2)$

16.

$$\sqrt{-100} - \sqrt{-9}$$
$$10i - 3i = 7i$$

21.

$$\underbrace{(-4 - 3i)}_{\text{blue}} + \underbrace{(9 - 3i)}_{\text{red}} = \underbrace{5 - 6i}_{\text{blue}}$$

$$5 - 6i$$

Complex #

22.

$$\begin{array}{r} (-2 - 7i) - (-5 - 9i) \\ \hline -2 + 5 = 3 + 2i \\ -7i + 9i \end{array}$$

27.

$$\begin{aligned} & (-7 + 4i)(1 - 2i) \\ & -7 + 14i + 4i - 8 \quad (\text{FOIL}) \\ & -7 + 18i + 8 \\ & 1 + 18i \end{aligned}$$

28.

$$(5 - 3i)^2$$
$$(5 - 3i)(5 - 3i)$$

	5	-3i
5	25	-15i
-3i	-15i	9i ²

$$16 - 30i$$

31.

Factor

$$9x^2 + 4$$

$$(3x + 2i)(3x - 2i)$$

$$9x^2 - 4i^2 \quad 9x^2 + 4$$

33.

Factor

$$\begin{aligned} & 3x^2 + 108 \\ & \underline{3}(x^2 + 36) \\ & \underline{3}_{\text{GCF}} (x + 6i)(x - 6i) \\ & \quad \quad \quad \underbrace{\hspace{10em}} \\ & \quad \quad \quad -36i^2 = +36 \end{aligned}$$

40.

Solve for x

$$\frac{2}{-2} = \frac{-2x^2}{-2}$$
$$\sqrt{-1} = \sqrt{x^2}$$
$$\pm i = x$$

41.

Solve for k

$$4k^2 + 3 = -4k$$

+4k +4k

$$4k^2 + 4k + 3 = 0$$

$$\frac{-4 \pm \sqrt{4^2 - 4(4)(3)}}{2(4)} = \frac{-4 \pm \sqrt{-32}}{8}$$

$$\sqrt{-32} = 4i\sqrt{2}$$

4 2

$$= \frac{-4 \pm 4i\sqrt{2}}{8} \quad x = \frac{-1 \pm i\sqrt{2}}{2}$$

Remember: ws due Friday

Name: _____ Hr: _____

Complex NumbersExpress each number in terms of i , and simplify.

1. $\sqrt{-36}$

2. $\sqrt{-100}$

3. $-\sqrt{-81}$

4. $2\sqrt{-49}$

5. $-2\sqrt{-3}$

6. $3\sqrt{-11}$

7. $\sqrt{-\frac{1}{4}}$

8. $\sqrt{-\frac{16}{25}}$

9. $\sqrt{-20}$

10. $\sqrt{-28}$

11. $-\sqrt{-10}$

12. $2\sqrt{-75}$

13. $5\sqrt{-8}$

Write each number in terms of i , perform the indicated operation, and write the answer in the form $a+bi$.

14. $\sqrt{-64} + \sqrt{-36}$

15. $3\sqrt{-4} + \sqrt{-121}$

16. $\sqrt{-100} - \sqrt{-9}$

Simplify the following complex numbers. Write your answer in the form $a+bi$.

17. $(2-7i) + (-5-2i)$

18. $(-4+5i) + (-3+i)$

19. $(-2+4i) - (6-3i)$

20. $(2-i) - (-5+8i)$

21. $(-4-3i) + (9-3i)$

22. $(-2-7i) - (-5-9i)$

23. $(4i)(7i)$

24. $(8i)(7+5i)$

25. $(-5i)(3-7i)$

26. $(-3i+1)(4+3i)$

27. $(-7+4i)(1-2i)$

28. $(5-3i)^2$

29. $(4+3i)^2$

Factor.

30. x^2+25

31. $9x^2+4$

32. $2x^2+32$

33. $3x^2+108$

Solve.

34. $3a^2 = -9$

35. $\frac{x^2}{36} = -1$

36. $x^2+36=117$

37. $0=64-4k^2$

38. $9p^2=12p-11$

39. $3a^2+9=7a$

40. $2=-2x^2$

41. $4k^2+3=-4k$