

Algebra 2 Review 4.1-4.4
Midchapter Test Mon.
Quiz 4.3-4.4 Fri.

Simplify. (Lesson 4-4)

$$9^{\frac{8}{5}}$$

17. $\sqrt{-81}$

$$\sqrt{81} \cdot \sqrt{-1}$$

↓

$$9i$$

18. $\sqrt{-25x^4y^5}$

$$\sqrt{25} \cdot \sqrt{-1} \quad \sqrt{\cancel{x} \cancel{x} \cancel{x} \cancel{x} y y y y}$$

↓

$$5i x x y y \sqrt{y}$$
$$5x^2y^2i\sqrt{y}$$

19. $(15 - 3i) - i(4 - 12i)$

$$\begin{array}{c} \underline{15 - 3i - 4 + 12i} \\ \text{real} \quad \text{imag} \\ \underline{11 + 9i} \end{array} \quad \text{!!}$$

$$9i + 11$$

20. i^{37}

$$\frac{37}{4}$$

$$9 \text{ (R1)}$$

$$1i = i$$

21. $(5 - 3i)(5 + 3i)$

$$\begin{array}{r} 5 - 3i \\ 5 + 3i \\ \hline 25 \quad \begin{array}{l} \textcircled{15i} \quad -9\textcircled{i^2} \\ -15i \quad -9 \cdot -1 \end{array} \\ \hline 34 \end{array}$$

22. $\frac{(3-i)(2-5i)}{(2+5i)(2-5i)} = \frac{1-17i}{29} = \frac{1}{29} - \frac{17i}{29}$

$\uparrow$ $\uparrow$
 real imag

$$\begin{array}{r} 2+5i \qquad 3-i \\ 2-5i \qquad 2-5i \\ \hline 4 \quad \textcircled{-25i^2} \qquad \begin{array}{l} -15i + 5\textcircled{i^2} \\ 6 - 2i \end{array} \\ \hline 1-17i \end{array}$$

$$\begin{array}{r} 1 \quad 12 \\ 2 \quad 6 \\ 3 \quad 4 \end{array}$$

Solve each equation by factoring. (Lesson 4-3)

10. $x^2 - x - 12 = 0$

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

$$\begin{array}{l} x-4=0 \\ x=4 \end{array} \quad \begin{array}{l} x+3=0 \\ x=-3 \end{array}$$

$$(6-i) + (3n)i = -12 + 27i$$

$$\frac{3ni}{3i} = \frac{27i}{3i}$$

$$n = 9$$

$$\frac{12 + 3i}{16}$$

$$\frac{12}{16} + \frac{3i}{16}$$

$$\frac{3}{4} + \frac{3i}{16}$$

$$13. \overset{a}{2}x^2 + \overset{c}{5}x - 3$$

$$\left(2x^2 - \frac{x}{3}\right) + \left(\frac{6x}{3} - 3\right) = 0$$

$$x(2x-1) + 3(2x-1) = 0$$

$$(2x-1)(x+3) = 0$$

$$2x-1=0$$

$$2x = 1$$

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

$$x+3=0$$

$$x = -3$$

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$\left(2x^2 + \frac{6x}{2}\right) \left(\frac{x}{1} - \frac{3}{1}\right) = 0$$

$$2x(x+3) - 1(x+3)$$

$$(x+3)(2x-1) = 0$$

14. Write a quadratic equation in standard form with roots -6 and $\frac{1}{4}$. (Lesson 4-3)

Reminder: standard form is always integers!

$$4x^2 + 23x - 6 = 0$$

$$(x+6)(x-\frac{1}{4}) = 0$$

$$x+6=0$$

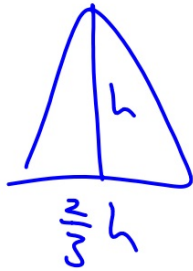
$$x = -6$$

$$x - \frac{1}{4} = 0$$

$$x = \frac{1}{4}$$

$$\begin{array}{r} x+6 \\ x-\frac{1}{4} \\ \hline -\frac{1}{4}x - \frac{6}{4} \\ x^2 \quad 6x \\ \hline x^2 + 5\frac{1}{4}x - \frac{3}{2} = 0 \end{array}$$

15. **TRIANGLES** Find the dimensions of a triangle if the base is $\frac{2}{3}$ the measure of the height and the area is 12 square centimeters. (Lesson 4-3)



$$A = \frac{1}{2}bh$$

$$12 = \frac{1}{2}(h)\left(\frac{2}{3}h\right)$$

$$3 \cdot 12 = \frac{1}{3}h^2 \cdot 3$$

$$\sqrt{36} = \sqrt{h^2}$$

$$h = 6 \text{ cm} \quad b = 4 \text{ cm}$$

1. Find the y -intercept, the equation of the axis of symmetry, and the x -coordinate of the vertex for $f(x) = 2x^2 + 8x - 3$. Then graph the function by making a table of values.

(Lesson 4-1)

2. MULTIPLE CHOICE For which equation is the axis of symmetry $x = 5$? (Lesson 4-1)

A $f(x) = x^2 - 5x + 3$

B $f(x) = x^2 - 10x + 7$

C $f(x) = x^2 + 10x - 3$

D $f(x) = x^2 + 5x + 2$

4. **PHYSICAL SCIENCE** From 4 feet above the ground, Maya throws a ball upward with a velocity of 18 feet per second. The height $h(t)$ of the ball t seconds after Maya throws the ball is given by $h(t) = -16t^2 + 18t + 4$. Find the maximum height reached by the ball and the time that this height is reached. (Lesson 4-1)