Algebra 2 Review Ch. 4

Test Ch. 4 Tues.

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

$\frac{-b}{2a}$

A $f(x) = x^2 - 5x + 3$ $\frac{5}{2}$

B $f(x) = x^2 - 10x + 7$ $\frac{10}{2}$?

C $f(x) = x^2 + 10x - 3$ $\frac{-10}{2}$

D $f(x) = x^2 + 5x + 2$ $\frac{-5}{2}$

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)

$x = \frac{-18}{2 \cdot -16} = \frac{18}{32} = \frac{9}{16} = 0.5625$

$y = -16(0.5625)^2 + 18(0.5625) + 4$

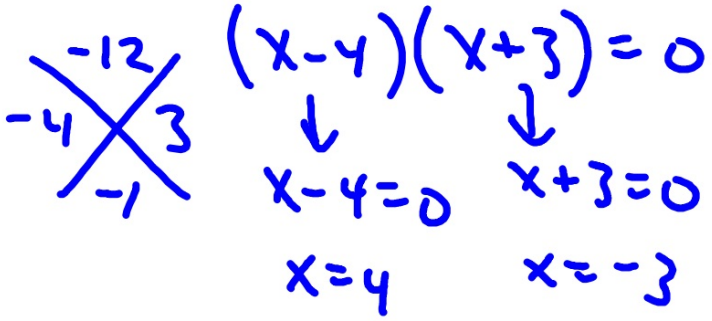
$= -5.0625 + 10.125 + 4$

$y = 9.06$

$(0.5625, 9.06 ft)$

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

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



13. $2x^2 + 5x - 3 = 0$

$a \quad b \quad c$

$$x = \frac{-5 \pm \sqrt{25 - 4 \cdot 2 \cdot -3}}{4}$$

$$= \frac{-5 \pm \sqrt{49}}{4} = \frac{-5 \pm 7}{4}$$

$$\frac{-5+7}{4} = \frac{1}{2}$$

$$\frac{-5-7}{4} = -3$$

$ax^2 + bx + c = 0$

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

$4x^2 + 24y - x - 6 = 0$

$4\left(x^2 + 6x - \frac{1}{4}x - \frac{6}{4} = 0\right)$

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

$x = -6 \quad x = \frac{1}{4}$

$+6 \quad +6 \quad -\frac{1}{4} \quad -\frac{1}{4}$

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

Equation must = something...

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)

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

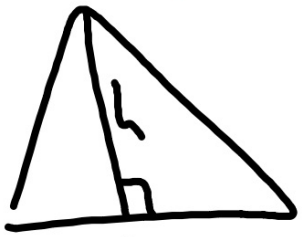
$= \frac{b \cdot h}{2}$

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

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

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

$\pm 6 = h$



$\frac{2}{3}h$

$\frac{2}{3} \cdot 6 = \frac{12}{3}$

$h = 6$ cm

$b = 4$ cm

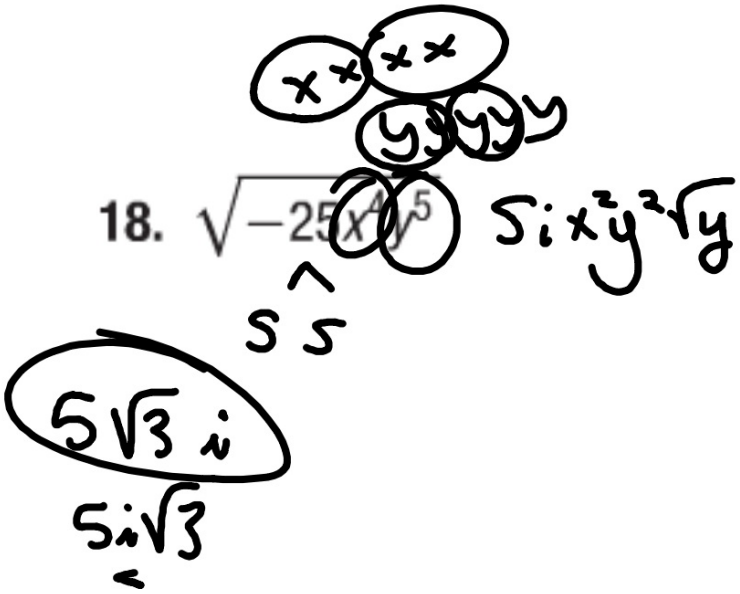
Simplify. (Lesson 4-4)

17. $\sqrt{-81} = 9i$

81

9 ^ 9

18. $\sqrt{-25x^4y^5}$ $5ix^2y^2\sqrt{y}$



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

$15 - 3i + 4 - 12i$

$11 + 9i$

~~$11 - 9i$~~

20. $i^{37} = i^{36} \cdot i = i$

$\sqrt{-1} = i$

$i \cdot i = -1$

$i \cdot i i = -1 i$

$i i i i = 1$

21. $(5 - 3i)(5 + 3i)$ = 34

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

22. $\dfrac{3-i}{2+5i} \cdot \dfrac{(2-5i)}{(2-5i)}$

$$\begin{array}{r} 3-i \\ 2-5i \\ \hline -15i + 5i^2 \\ 6 - 2i \\ \hline \end{array}$$

$$= \frac{1-17i}{29}$$

$$= \frac{1}{29} - \frac{17}{29}i$$

$$\begin{array}{r} 2+5i \\ 2-5i \\ \hline 4 - 25i^2 \end{array}$$

$y < x^2 + 3x + 2$