Alg 2A Ch 4B Test Practice Test Key

These questions are very similar to those appearing on the Ch 4B Test

Each question's point value on the actual test appears in < >.

Solve by factoring: *<6 ea.>*

1. $x^2 - 8x + 12 = 0$

$(x-6)(x-2)=0$

$x-6=0 \quad , \quad x-2=0$

$x=6, \quad x=2$

$x=\{6,2\}$

2. $3x^2 + 4x = 7$

$3x^2+4x-7=0$

$x^2+4x-21=0$

$(x+\frac{7}{3})(x-\frac{3}{3})=0$

$(3x+7)(x-1)=0$

$3x+7=0 \quad x-1=0$

$x=\{-\frac{7}{3}, 1\}$

Solve by square roots: *<6>*

3. $3x^2 = 75$

$\frac{3}{3} \quad \frac{3}{3}$

$x^2=25$

$x=\pm 5$

Solve by completing the square: *<6>*

4. $x^2 - 8x + 14 = 0$

$x^2-8x+16=-14+16$

$(x-4)^2=2$

$x-4=\pm\sqrt{2}$

$x=4\pm\sqrt{2}$

-more- /24

Find the discriminant; determine the number of real solutions:

5. $2x^2 + 3x - 5 = 0$ discriminant: 49 <3>

$b^2 - 4ac =$

$3^2 - 4(2)(-5) =$

$9 + 40 =$

49

$49 > 0$, so 2 real solutions

# of real solutions: 2 <3>

6. State the Quadratic Formula: $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ <3>

7. What is the square root of -4? $\pm 2i$ <3>

Solve by the Quadratic Formula <6 ea>

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

$x = \frac{3 \pm \sqrt{9 - 4(5)}}{2}$

$x = \frac{3 \pm \sqrt{-11}}{2}$

$x = \frac{3 \pm i\sqrt{11}}{2}$

8. $2x^2 - 3x = 5$

$2x^2 - 3x - 5 = 0$

$x = \frac{3 \pm \sqrt{9 - 4(-10)}}{4}$

$x = \frac{3 \pm 7}{4}$; $\frac{-4}{4}, \frac{10}{4}$

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

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-more-

Perform the indicated operations <6 ea.>

10. $(4 + 5i) + (6 - 2i)$

$10 + 3i$

11. $(4 + 5i) - (7 - 9i)$

$-7 + 9i$

$-3 + 14i$

12. $(6 + 2i)(1 - 5i)$

$6 - 30i + 2i + 10i^2$

$16 - 28i$

13. $\frac{3+5i}{2-7i} \cdot \frac{2+7i}{2+7i} =$

$\frac{6 + 21i + 10i + 35i^2}{4 + 49i^2}$

$\frac{-29 + 31i}{53}$

$-\frac{29}{53} + \frac{31}{53}i$

Factor over the complex numbers <6 ea.>

14. $x^2 + 36$

$x^2 - (-36)$

$(x - 6i)(x + 6i)$

15. $5x^2 + 80$

$5(x^2 + 16)$

$5(x - 4i)(x + 4i)$

-more-

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16. For the quadratic equation $y = x^2 + 3x - 4$ find all requested information posed below, then make a detailed graph of the quadratic labeling all the points/axis of symmetry:

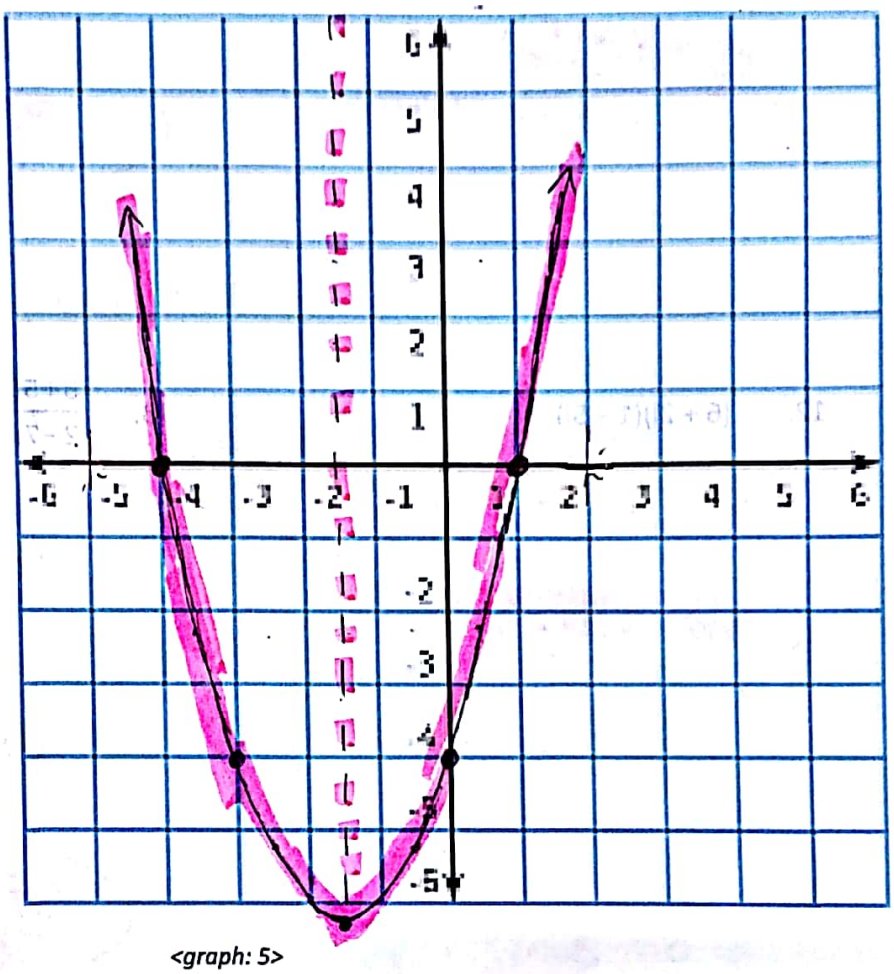
axis of symmetry $x = -\frac{3}{2}$ <2>

vertex: $\left(-\frac{3}{2}, -\frac{25}{4}\right)$ <3>

y-intercept: $(0, -4)$ <2>

x-intercepts:

$\{(1, 0), (-4, 0)\}$ <4>



<graph: 5>

aos: $-\frac{b}{2a} = -\frac{3}{2}$

vertex: $\left(-\frac{3}{2}, -\frac{25}{4}\right)$

$(-3/2)^2 + 3(-3/2) - 4 =$

$\frac{9}{4} - \frac{9}{2} - 4 =$

$-\frac{9}{4} - 4 = \rightarrow -6\frac{1}{4}$ or $-25/4$

x-int:

$x = \frac{-3 \pm \sqrt{9 - 4(-4)}}{2}$

$x = \frac{-3 \pm 5}{2} \Rightarrow 1, -4$

-end-

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