

Algebra II

Unit 16 Review

09/05/2018

7) $x^2 = 90$
 $x = \pm \sqrt{90}$
 $x = \pm \sqrt{9 \cdot 10}$
 $x = \pm 3\sqrt{10}$

8) $2x^2 + 5 = 41$
 $2x^2 - 36 = 0$
 $2(x^2 - 18) = 0$
 $x^2 - 18 = 0$
 $x^2 = 18$
 $x = \pm \sqrt{18}$
 $x = \pm \sqrt{9 \cdot 2}$
 $x = \pm 3\sqrt{2}$

9) $7 - 10x^2 = 1$
 $10x^2 - 6 = 0$
 $10x^2 = 6$
 $x^2 = \frac{6}{10} = \frac{3}{5}$
 $x = \pm \sqrt{\frac{3}{5}}$

10) $\frac{x^2}{6} - 3 = -4$
 $\frac{x^2}{6} = -1$
 $x^2 = -6$
 $x = \pm \sqrt{-6}$
 $x = \pm i\sqrt{6}$

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Algebra II Unit 16 Review

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11) $4(t+6)^2 = 160$

$$(t+6)^2 = 40$$

$$t+6 = \pm\sqrt{40}$$

$$t+6 = \pm\sqrt{4}\sqrt{10}$$

$$t = -6 \pm 2\sqrt{10}$$

12) $(x-8)^2 = 7$

$$x-8 = \pm\sqrt{7}$$

$$x = 8 \pm \sqrt{7}$$

13) $x^2 + 11x + 24 = 0$

$$(x+3)(x+8) = 0$$

$$x+3=0 \quad x+8=0$$

$$x=-3 \quad x=-8$$

14) $x^2 - 8x + 16 = 0$

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

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

$$x-4=0$$

$$x=4$$

15) $2x^2 + 3x + 1 = 0$

$$(2x^2 + 1x) + (2x + 1) = 0$$

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

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

$p(2)$	$s(3)$
	$2+1$

$$16) \quad x^2 - 25 = 0$$

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

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

$$x = \pm 5$$

$$17) \quad 16x^2 - 9 = 0$$

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

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

$$x = -\frac{3}{4} \quad x = \frac{3}{4}$$

$$18) \quad 9x^2 + 12x + 4 = 0$$

$P(36)$	$S(12)$
	$6+6$

$$(9x^2 + 6x) + (6x + 4) = 0$$

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

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

$$(3x+2)^2 = 0$$

$$3x+2 = 0$$

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

$$19) \quad 6t^2 - 36t = 0$$

$$6t(t-6) = 0$$

$$6t=0 \quad t-6=0$$

$$t=0 \quad t=6$$

$$20) \quad (3x^3 + x^2) + (15x + 5) = 0$$

$$x^2(3x+1) + 5(3x+1) = 0$$

$$(3x+1)(x^2+5) = 0$$

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

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

$$x = \pm i\sqrt{5}$$

(4)

Algebra II Unit 1b Review

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$$21) \quad x^4 - 4x^3 + x^2 - 4x = 0$$

$$x[(x^3 - 4x^2) + (x - 4)] = 0$$

$$x[x^2(x - 4) + 1(x - 4)] = 0$$

$$x(x - 4)(x^2 + 1) = 0$$

$$x = 0 \quad x - 4 = 0 \quad x^2 + 1 = 0$$

$$x = 4 \quad x^2 = -1$$

$$x = \pm \sqrt{-1}$$

$$x = \pm i$$

$$22) \quad x^2 - 8x + 5 = 0 \quad x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$a = 1, b = -8, c = 5$$

$$= \frac{8 \pm \sqrt{64 - 4(5)}}{2}$$

$$23) \quad 9x^2 = 1 - 7x$$

$$9x^2 + 7x - 1 = 0$$

$$a = 9 \quad b = 7 \quad c = -1$$

$$= \frac{8 \pm \sqrt{44}}{2}$$

$$= 4 \pm \frac{\sqrt{44}}{2}$$

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

$$= 4 \pm \frac{2\sqrt{11}}{2}$$

$$= \frac{-7 \pm \sqrt{49 - 4(-9)}}{18}$$

$$= 4 \pm \sqrt{11}$$

$$= \frac{-7 \pm \sqrt{85}}{18}$$

Algebra II Unit 1b Review

09/05/2018

24) $5x^2 + 6x + 7 = x^2 - 4x$ $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
 $4x^2 + 10x + 7 = 0$
 $a=4 \quad b=10 \quad c=7$ $= \frac{-10 \pm \sqrt{100 - 4(28)}}{8}$

25) $x^2 + 4x = 3$ $c = (\frac{b}{2})^2$
 $\quad \quad \quad +4 \quad +4 \quad c = (\frac{4}{2})^2 = 4$
 $x^2 + 4x + 4 = 7$ $= (\frac{4}{2})^2 = 4$
 $(x+2)^2 = 7$
 $x+2 = \pm\sqrt{7}$
 $x = -2 \pm \sqrt{7}$

$= \frac{-10 \pm \sqrt{-12}}{8}$
 $= \frac{-5 \pm \sqrt{4-1-3}}{4}$
 $= \frac{-5 \pm 2i\sqrt{3}}{4}$
 $= \frac{-5 \pm 2i\sqrt{3}}{4}$

26) $x^2 - 10x + 26 = 0$
 $x^2 - 10x = -26$ $c = (\frac{b}{2})^2 = (\frac{-10}{2})^2 = 25$
 $\quad \quad \quad +25 \quad +25$
 $x^2 - 10x + 25 = -1$
 $(x-5)^2 = -1$
 $x-5 = \pm\sqrt{-1}$
 $x = 5 \pm i$

27) Don't work because I have not taught you how to complete the square if $a \neq 1$.

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
 $2x^2 + 8x - 7 = 0$
 $a=2 \quad b=8 \quad c=-7$ $= \frac{-8 \pm \sqrt{64 - 4(-14)}}{4}$
 $\sqrt{120} = \sqrt{4} \sqrt{30}$ $= \frac{-8 \pm \sqrt{120}}{4} = \frac{-8 \pm 2\sqrt{30}}{4}$
 $\quad \quad \quad 2\sqrt{30}$ $= \frac{-8 \pm 2\sqrt{30}}{4} = \frac{-4 \pm \sqrt{30}}{2}$

Algebra II Test Revised Part 2

(6)
09/05/2018

New instructions.

Factor if factorable. Other wise solve using quadratic formula ($a \neq 1$) or completing the square ($a = 1$).

1) $6p^2 - 2p - 3 = 0$ $p(-18) \mid D(-2)$
 $a=6$ $b=-2$ $c=-3$ Not factorable

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

$$= \frac{2 \pm \sqrt{4 - 4(-18)}}{12}$$

$$= \frac{2 \pm \sqrt{76}}{12}$$

$$= \frac{2 \pm \sqrt{4 \cdot 19}}{12}$$

$$= \frac{2 \pm 2\sqrt{19}}{12}$$

$$= \frac{1 \pm \sqrt{19}}{6}$$

2) $(-2x - x - 1 = 0) \mid (-1)$

$$2x + x + 1 = 0$$

$a=2, b=1, c=1$ $p(2) \mid (-1)$
 not factorable

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

$$= \frac{-1 \pm \sqrt{1 - 4(2)}}{4}$$

$$= \frac{-1 \pm \sqrt{-7}}{4}$$

$$= \frac{-1 \pm i\sqrt{7}}{4}$$

Algebra II Test Review Part 2

09/05/2018

3)

$$-4m^2 - 4m + 5 = 0$$

$$4m^2 + 4m - 5 = 0$$

$$a=4, b=4, c=-5$$

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

$$= \frac{-4 \pm \sqrt{16 - 4(-20)}}{8}$$

$$= \frac{-4 \pm \sqrt{96}}{8}$$

$$= \frac{-4 \pm \sqrt{16} \sqrt{6}}{8}$$

$$= \frac{-4 \pm 4\sqrt{6}}{8}$$

$$= \frac{-1 \pm \sqrt{6}}{2}$$

$$P(-20) | D(4)$$

Not factorable

use quad eqn

4) $5b^2 + b - 2 = 0$

$$P(-10) | D(1)$$

Not factorable

a=5 so quad formula

$$a=5, b=1, c=-2$$

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

2a

$$= \frac{-1 \pm \sqrt{1 - 4(-10)}}{10}$$

10

$$= \frac{-1 \pm \sqrt{41}}{10}$$

10

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Algebra II Test Review Part 2

09/05/2018

7) $9n^2 - 3n - 8 = -10$

$P(18) | (5-3)$

$9n^2 - 3n + 2 = 0$

not factorable

$a=9$ $b=-3$ $c=2$ since $a \neq 1$ use quad formula

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

$$= \frac{3 \pm \sqrt{9 - 4(18)}}{18}$$

$$= \frac{3 \pm \sqrt{-63}}{18}$$

$$= \frac{3 \pm \sqrt{9} \sqrt{-1} \sqrt{7}}{18}$$

$$= \frac{3 \pm 3i\sqrt{7}}{18}$$

$$= \frac{1 \pm i\sqrt{7}}{6}$$

8) $-2x^2 - 8x - 14 = -6$

$0 = 2x^2 + 8x + 14 - 6$

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

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

$2(x+2)(x+2) = 0$

$2(x+2)^2 = 0$

$x+2 = 0$

$x = -2$

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Algebra II

Test Review Part 2

09/05/2018

9)

$$9m^2 + 6m + 6 \xrightarrow{=5}$$

$$P(9) = (6)$$

$$9m^2 + 6m + 1 = 0$$

3+3

$$(9m^2 + 3m) + (3m + 1) = 0$$

Factorable

$$3m(3m+1) + 1(3m+1) = 0$$

$$(3m+1)(3m+1) = 0$$

$$(3m+1)^2 = 0$$

$$3m+1 = 0$$

$$m = -\frac{1}{3}$$

10)

$$4a^2 = 8a - 4$$

$$4a^2 - 8a + 4 = 0$$

$$4(a^2 - 2a + 1) = 0$$

$$4(a-1)(a-1) = 0$$

$$4(a-1)^2 = 0$$

$$a-1 = 0$$

$$a = 1$$

11)

$$-9b^2 = -8b + 8$$

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

$$0 = 9b^2 - 8b + 8$$

2a

$$9b^2 - 8b + 8 = 0$$

$$= \frac{8 \pm \sqrt{64 - 4(72)}}{18}$$

$$a=9 \quad b=-8 \quad c=8$$

18

$$P(72) | S(-8)$$

$$= \frac{8 \pm \sqrt{-224}}{18}$$

not factorable

18

$$= \frac{8 \pm \sqrt{16} \sqrt{-14}}{18}$$

18

$$= \frac{8 \pm 4\sqrt{-14}}{18} = \frac{4 \pm 2\sqrt{-14}}{9}$$

18

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Algebra II Test Review Part 2

09/05/2018

$$12) \quad -x^2 - 9 = 6x$$

$$0 = x^2 + 6x + 9$$

$$x^2 + 6x + 9 = 0$$

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

$$(x+3)^2 = 0$$

$$x+3 = 0$$

$$x = -3$$

Solve by taking square root.

$$1) \quad k^2 + 6 = 6$$

$$k^2 = 0$$

$$k = 0$$

$$5) \quad 9r^2 - 3 = -152$$

$$9r^2 = 149$$

$$r^2 = \frac{149}{9}$$

$$r = \pm \frac{\sqrt{149}}{3}$$

$$2) \quad 25v^2 = 1$$

$$v^2 = \frac{1}{25}$$

$$v = \pm \frac{1}{5}$$

$$6) \quad 9r^2 - 5 = 607$$

$$9r^2 = 612$$

$$r^2 = \frac{612}{9} = 68$$

$$r = \pm \sqrt{68}$$

$$r = \pm \sqrt{4 \cdot 17}$$

$$r = \pm 2\sqrt{17}$$

$$3) \quad n^2 + 4 = 40$$

$$n^2 = 36$$

$$n = \pm 6$$

$$7) \quad -10 - 5n^2 = -330$$

$$0 = 5n^2 + 10 - 330$$

$$5n^2 - 320 = 0$$

$$5n^2 = 320$$

$$n^2 = 64$$

$$n = \pm 8$$

$$4) \quad x^2 - 2 = 17$$

$$x^2 = 19$$

$$x = \pm \sqrt{19}$$

$$8) \quad 5a^2 + 7 = -60$$

$$5a^2 = -67$$

$$a^2 = \frac{-67}{5}$$

$$a = i\sqrt{\frac{67}{5}}$$