

Alg 2: Exam 2 Review

$$\textcircled{1} \quad x^2 + 3x = \boxed{x(x+3)}$$

$$\textcircled{2} \quad x^2 + 3x - 54 = \boxed{(x+9)(x-6)}$$

$$\textcircled{3} \quad 2x^2 - 9x + 10 = \boxed{(2x-5)(x-2)}$$

$$\textcircled{4} \quad y^2 - 100 = \boxed{(y+10)(y-10)}$$

$$\textcircled{5} \quad 2x^2 + x - 6 = \boxed{(2x-3)(x+2)}$$

$$\begin{aligned} \textcircled{6} \quad 8y^4 - 8 &= 8(y^4 - 1) \\ &= 8(y^2 + 1)(y^2 - 1) \\ &= \boxed{8(y^2 + 1)(y+1)(y-1)} \end{aligned}$$

$$\textcircled{7} \quad 25x^2y^6 - z^{50} = \boxed{(5xy^3 + z^{25})(5xy^3 - z^{25})}$$

$$\begin{aligned} \textcircled{8} \quad 10x^2 - 38x - 8 &= 2(5x^2 - 19x - 4) \\ &= \boxed{2(5x+1)(x-4)} \end{aligned}$$

$$\begin{aligned} \textcircled{9} \quad 4x^2 - 100 &= 4(x^2 - 25) \\ &= \boxed{4(x+5)(x-5)} \end{aligned}$$

$$\begin{aligned} \textcircled{10} \quad 3x^3y + 15x^2y - 42xy &= 3xy(x^2 + 5x - 14) \\ &= \boxed{3xy(x-2)(x+7)} \end{aligned}$$

$$\textcircled{11} \quad 14x^2 - 56 = 0$$

$$14(x^2 - 4) = 0$$

$$14(x+2)(x-2) = 0$$

$$\boxed{\{-2, 2\}}$$

$$x+2=0 \quad \vee \quad x-2=0$$

$$x=-2 \quad \vee \quad x=2$$

$$(12) m^2 + 10m = -9$$

$$m^2 + 10m + 9 = 0$$

$$(m+1)(m+9) = 0$$

$$m+1=0 \quad \vee \quad m+9=0$$

$$m=-1 \quad \vee \quad m=-9$$

$$\{-9, -1\}$$

$$(13) d^2 - 2d = 0$$

$$d(d-2) = 0$$

$$d=0 \quad \vee \quad d-2=0$$

$$d=0 \quad \vee \quad d=2$$

$$\{0, 2\}$$

$$(14) x^2 - 5x + 4 = 0$$

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

$$x-4=0 \quad \vee \quad x-1=0$$

$$x=4 \quad \vee \quad x=1$$

$$\{1, 4\}$$

$$(15) x(x-2) = 35$$

$$x^2 - 2x = 35$$

$$x^2 - 2x - 35 = 0$$

$$(x-7)(x+5) = 0$$

$$x-7=0 \quad \vee \quad x+5=0$$

$$x=7 \quad \vee \quad x=-5$$

$$\{-5, 7\}$$

$$(16) 4x^2 = 2x^2 + 50$$

$$2x^2 - 50 = 0$$

$$2(x^2 - 25) = 0$$

$$2(x+5)(x-5) = 0$$

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

$$x=-5 \quad \vee \quad x=5$$

OR

$$4x^2 = 2x^2 + 50$$

$$2x^2 = 50$$

$$x^2 = 25$$

$$x = \pm 5$$

$$\{-5, 5\}$$

$$(17) x^2 + 22 = 13x$$

$$x^2 - 13x + 22 = 0$$

$$(x-11)(x-2) = 0$$

$$x-11=0 \quad \vee \quad x-2=0$$

$$x=11 \quad \vee \quad x=2$$

$$\boxed{\{2, 11\}}$$

$$(18) x^2 + x > 12$$

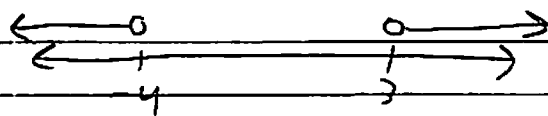
$$x^2 + x - 12 > 0$$

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

$$\{x < -4 \vee x > 3\}$$

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

$$x=-4 \quad \vee \quad x=3$$



choice (1)

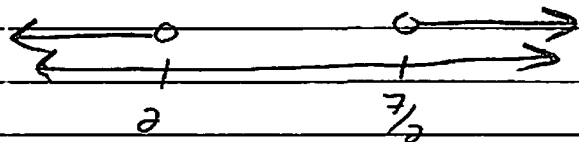
$$(19) 2x^2 > 11x - 14$$

$$2x^2 - 11x + 14 > 0$$

$$(2x-7)(x-2) > 0$$

$$2x-7=0 \quad \vee \quad x-2=0$$

$$x = \frac{7}{2} \quad \vee \quad x = 2$$



$$\boxed{\{x < 2 \vee x > \frac{7}{2}\}}$$