

SOLUTIONS.

PRACTICE QUESTIONS: Standard & Factored Form

Name: Notes

Find the zeros of the following quadratic equations. Be sure to FULLY FACTOR! This may require more than 1 step.

a) $y = x^2 - 2x - 24$

$$y = (x-6)(x+4)$$

$$0 = (x-6)(x+4)$$

$$\boxed{x=6} \quad \boxed{x=-4}$$

∴ x-int are 6 and -4

∴ y-int is -24

d) $y = x^2 + 6x + 5$

$$y = (x+1)(x+5)$$

$$0 = (x+1)(x+5)$$

$$\boxed{x=-1} \quad \boxed{x=-5}$$

∴ x-int are -1 and -5.

∴ y-int is 5.

g) $y = x^2 - 8x + 7$

$$y = (x-1)(x-7)$$

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

$$\boxed{x=1} \quad \boxed{x=7}$$

∴ x-int are 1 and 7.

∴ y-int is 7

b) $y = 2x^2 - 20x + 42$
- common factor 1st!
- trinomial

$$y = 2(x^2 - 10x + 21)$$

$$0 = 2(x-7)(x-3)$$

$$\boxed{x=7} \quad \boxed{x=3}$$

∴ x-int are 7 and 3.

∴ y-int is 42.

e) $y = 3x^2 + 15x - 42$

$$y = 3(x^2 + 5x - 14)$$

$$0 = 3(x+7)(x-2)$$

$$\boxed{x=-7} \quad \boxed{x=2}$$

∴ x-int are -7 and 2.

∴ y-int is -42.

c) $y = 5x^2 - 245$
- common factor
- diff of squares

$$y = 5(x^2 - 49)$$

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

$$\boxed{x=7} \quad \boxed{x=-7}$$

∴ x-int are 7 and

∴ y-int is -245 .

f) $y = x^2 - 121$

$$y = (x+11)(x-11)$$

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

$$\boxed{x=-11} \quad \boxed{x=11}$$

∴ x-int are -11 and 11.

∴ y-int is -121

h) $y = 2x^2 - 6x - 36$

$$y = 2(x^2 - 3x - 18)$$

$$0 = 2(x-6)(x+3)$$

$$\begin{matrix} \downarrow & \downarrow \\ x-6=0 & x+3=0 \\ \boxed{x=6} & \boxed{x=-3} \end{matrix}$$

∴ x-int are 6 and -3.

∴ y-int is -36.

i) $y = 3x^2 - 75$

$$y = 3(x^2 - 25)$$

$$0 = 3(x-5)(x+5)$$

$$\boxed{x=5} \quad \boxed{x=-5}$$

∴ x-int are 5 and -5.

∴ y-int is -75.