

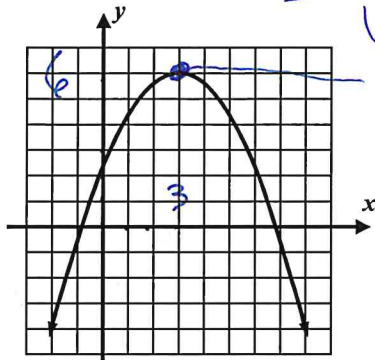
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UNIT 8 SKILLS REVIEW – MARCH 16TH – MARCH 20TH

1. For the quadratic function shown below, the coordinates of its vertex are

- (1) (0, 2)
- (2) (-1, 7)
- (3) (6, 2)
- (4) (3, 6)



↳ is the turning point

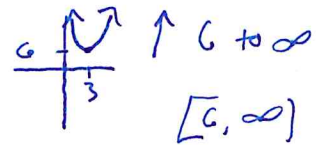
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2. A quadratic function has selected values shown in the table below. If its domain is all real numbers, which of the following represents the range of this quadratic function? *Draw a quick sketch*

- (1) [1, 6]
- (2) [6, 15]

y-values
(3) [6, ∞)

x	1	2	3	4	5	6
y	10	7	6	7	10	15



- (4) (-∞, 6]

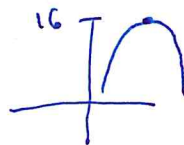
Range is Down to up.

3

3. Which of the following quadratic function has a maximum value of 16?

- (1) $y = x^2 + 16$
- (2) $y = 16 - x^2$
- (3) $y = (x - 16)^2$
- (4) $y = (x + 16)^2$

means concave down

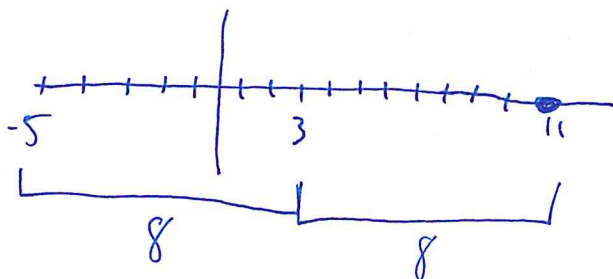


concave down

2

4. The quadratic function $f(x)$ has one zero at $x = -5$ and a turning point at $(3, 10)$. What is the value of its other zero?

- (1) $x = 11$
- (2) $x = 5$
- (3) $x = 25$
- (4) $x = -3$



1

5. Which of the following is the turning point of the function $y = (x-8)^2 - 2$?

(1) $(8, -2)$

(3) $(-8, -2)$

(2) $(-8, 2)$

(4) $(8, 2)$

$(8, -2)$

1

6. The solution set to $8x^2 - 4x = 0$ is

① factor out the gcf.

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

(1) $x = 0$ and 4

② zero product law.

(2) $x = \frac{1}{2}$ and 4

(4) $x = -4$ and 2

$\frac{4x}{4} = \frac{0}{4}$
 $x = 0$

$2x - 1 = 0$

$2x = 1$

3

7. Which of the following is the turning point of the function $y = (x+3)(x-5)$?

$x = \frac{1}{2}$

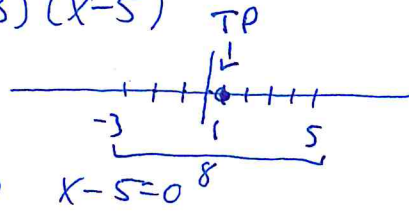
(1) $(1, -16)$

(3) $(-2, -7)$

(2) $(3, 12)$

(4) $(-4, -8)$

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



$x+3=0$
 $x=-3$

$x-5=0$
 $x=5$

1

8. Which of the following quadratic has the same zeroes as $y = x^2 - 7x - 30$?

(1) $y = x^2 - 7x - 10$

(3) $y = 2x^2 - 14x - 30$

(2) $y = 5x^2 - 35x - 150$

(4) $y = x^2 + 7x + 30$

↑ multiplied all coeff. by 5.

2

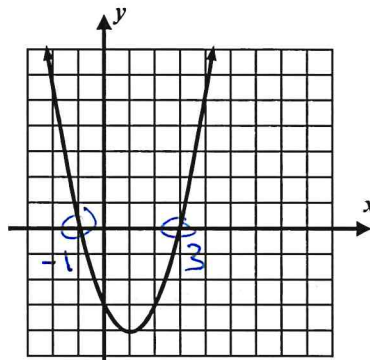
9. Which of the following represents a correct equation for the parabola shown below?

(1) $y = (x+3)(x-1)$

(2) $y = (x+2)(x-2)$

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

(4) $y = (x+1)(x-3)$



4

10. What is the range of the function $g(x) = -3(x+5)^2 + 10$?

Determine the turning point $(-5, 10)$
 Is it concave up or down? Down

Range are the y-values

Draw quick sketch



$$(-\infty, 10]$$

11. What is the turning point of the quadratic function $y = x^2 + 10x + 35$?

Complete the square.

$$\left(\frac{10}{2}\right)^2 = (5)^2 = 25$$

$$= (x^2 + 10x + 25) - 25 + 35$$

$$= (x+5)(x+5) + 10$$

$$= (x+5)^2 + 10$$

$$\text{TP} = (-5, 10)$$

12. What are the zeroes of the function $y = x^2 + 3x - 10$?

$$0 = x^2 + 3x - 10$$

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

$$5x - 2x = 3x$$

$$x-2=0$$

$$x=2$$

$$x+5=0$$

$$x=-5$$

$$\{-5, 2\}$$

13. Put this quadratic function into vertex form by completing the square: $y = x^2 - 8x + 7$

$$\left(-\frac{8}{2}\right)^2 = (-4)^2 = 16$$

$$= (x^2 - 8x + 16) - (16 + 7)$$

$$= (x-4)(x-4) - 9$$

$$= (x-4)^2 - 9$$

14. Solve the following equation for all values of x .

$$(x-8)(4x+3) - (x-8)(x-2) = 0$$

factor out the gcf.

$$(x-8)(4x+3) - (x-2) = 0$$

$$(x-8)(4x+3 - x+2) = 0$$

$$(x-8)(3x+5) = 0$$

$$x-8=0 \quad x=8$$

$$3x+5=0 \quad x=-5/3$$

$$\{-5/3, 8\}$$

15. A quadratic function has a turning point at $(3, 8)$. Selected values for the function are shown in the table below.

x	-1	0	1	2	3	4	5	6	7
$f(x)$	-24	-10	0	6	8	6	0	-10	-24

(a) Finish filling out the table.

(b) State the zeroes of the function.

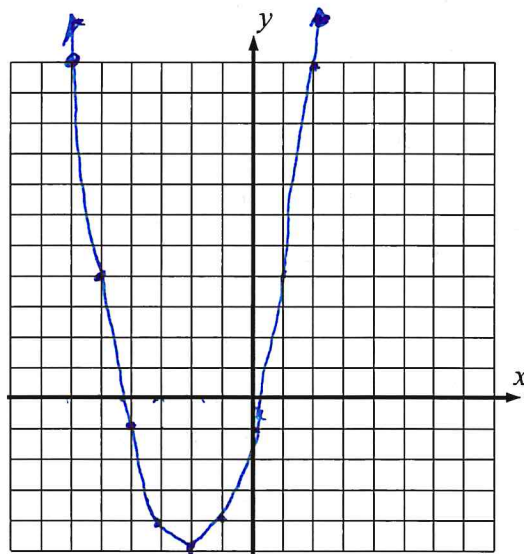
when y or $f(x) = 0$.

$$\{1, 5\}$$

16. For the quadratic function $f(x) = x^2 + 4x - 1$ defined on the interval $-6 \leq x \leq 2$.

(a) Graph the function for the stated domain interval.

x	-6	-5	-4	-3	-2	-1	0	1	+2
f(x)	11	4	-1	-4	-5	-4	-1	4	11



(b) State the interval over which $f(x)$ is increasing.

$[-2, \infty)$

Remember we are talking about the domain, the X-values.

17. Place the quadratic $y = 2x^2 + 24x + 79$ into vertex form by using the method of completing the square and then state the coordinates of its vertex.

$$\begin{aligned}
 &= 2(x^2 + 12x) + 79 \\
 \left(\frac{12}{2}\right)^2 &= (6)^2 = 36 \\
 &= 2(x^2 + 12x + 36) - 2(36) + 79 \\
 &= 2(x+6)(x+6) - 72 + 79 \\
 &\rightarrow = 2(x+6)^2 + 7 \\
 &(-6, 7)
 \end{aligned}$$

18. Solve the following equation for all values of x.

$$\begin{aligned}
 2x^2 + 18x - 17 &= 11x - 2 \\
 -11x + 2 & \quad -11x + 2 \\
 2x^2 + 7x - 15 &= 0 \\
 (2x-3)(x+5) &= 0 \\
 10x - 3x &= 7x \checkmark
 \end{aligned}$$

$$\begin{aligned}
 2x - 3 &= 0 & x + 5 &= 0 \\
 2x &= 3 & x &= -5 \\
 x &= \frac{3}{2}
 \end{aligned}$$

$\left\{ -5, \frac{3}{2} \right\}$

19. A rectangle has a length that is nine feet less than four times its width. Its area is 90 square feet. Algebraically determine the number of feet in its width and length. Show the work that leads to your answer.

$$\begin{aligned}
 L &= 4w - 9 \\
 A &= 90 = L \cdot w \\
 A &= 90 = (4w - 9)w \\
 \text{Distributive} &\rightarrow \\
 90 &= 4w^2 - 9w
 \end{aligned}$$

$$\begin{aligned}
 0 &= 4w^2 - 9w - 90 \\
 0 &= (4w + 15)(w - 6) \\
 -24w + 15w &= 9w
 \end{aligned}$$

$$\begin{aligned}
 4w + 15 &= 0 & w - 6 &= 0 \\
 w &= \frac{-15}{4} & w &= 6 \checkmark \\
 \text{can't have a negative width} & & L &= 4(6) - 9 \\
 & & &= 24 - 9 \\
 & & &= 15
 \end{aligned}$$