

MCR3U Chapter 1 Test

Name: _____

Show ALL work.

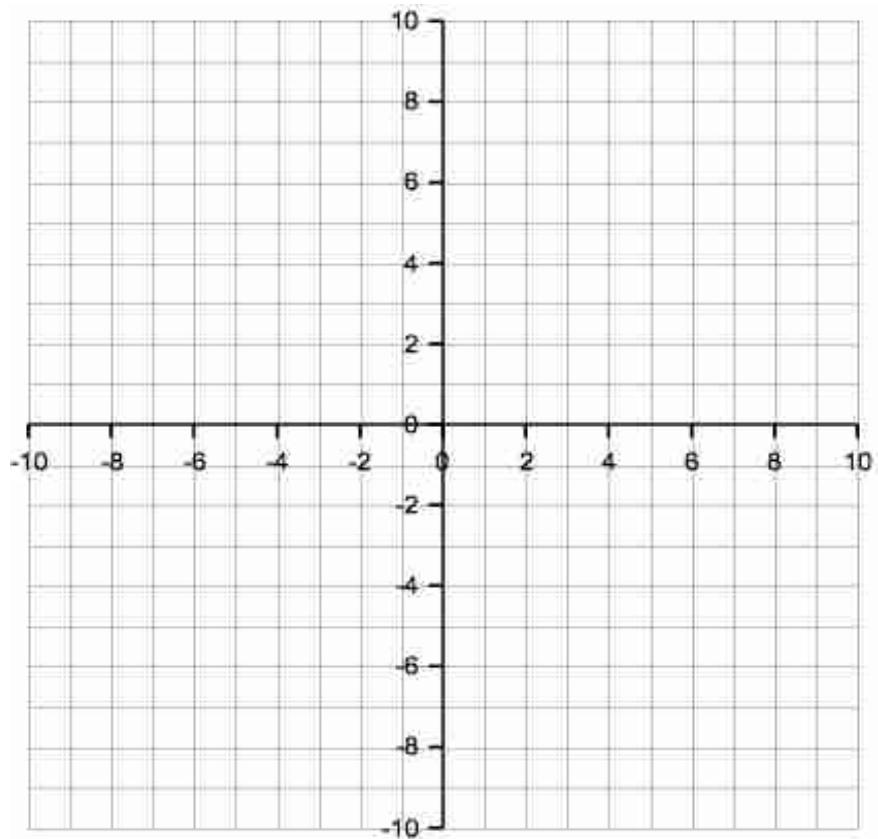
K	/ 21
T	/ 9
C	/ 8
A	/ 12
Total	/ 50

1. Graph each of the following functions. Graphs should include all points that appear in the domain and range of the grid provided, with a smooth line passing through the points.

a) $y = (x + 7)^2 - 4$

b) $f(x) = \frac{1}{2}x^2 - 3x - 4$

5 K



2. If a certain quadratic function has only one x-intercept, what does this tell us about its vertex? Sketch an example to justify your answer.

2 K

3. Solve each of the following quadratic equations.

a) $3x^2 - 11x + 6 = 0$

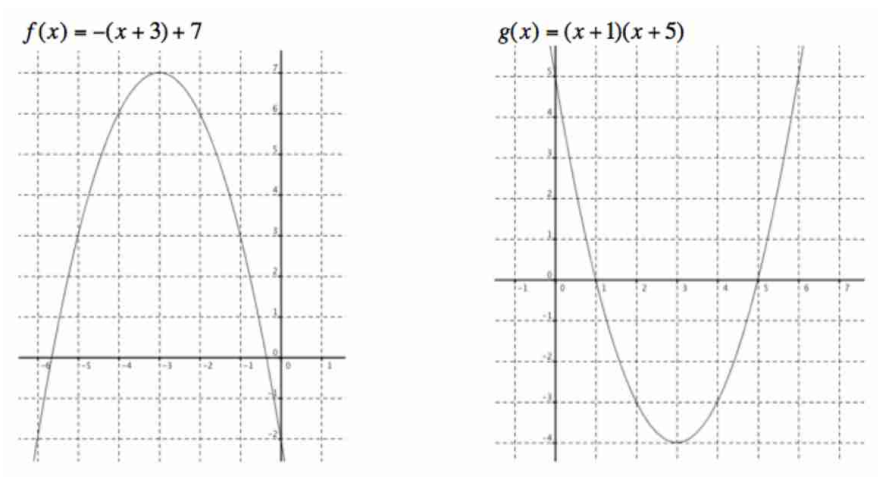
b) $12x^2 - 27 = 0$

6 C

4. Determine an equation in factored form for the quadratic function that contains the point (0, 8) and has x-intercepts at 4 and -3. Use fractions, not decimals, if necessary.

4 T

5. A student wrote the following equations for the graphs provided below. State the error in each of the equations (why do they NOT correctly represent the graphs?).

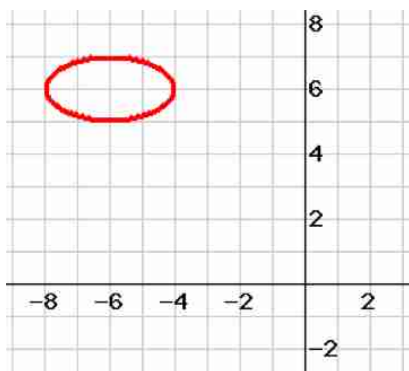


2 C

6. Determine the point(s) of intersection of the functions $f(x)=2(x-6)^2-1$ and $g(x)=8x-57$.

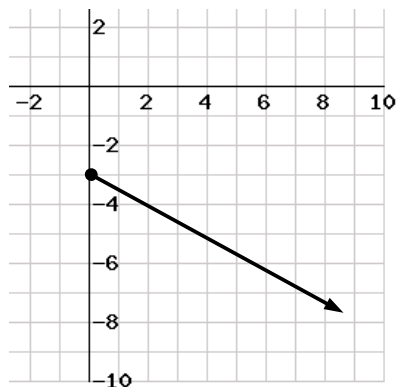
6 A

7. Find the domain and range of each of the following curves:



Domain:

Range:



Domain:

Range:

$$p(x)=-3(x-2)^2-23$$

Domain:

Range:

6 K

8. Given that

$$\begin{aligned} f(x) &= 9x^2 - 6 \\ g(x) &= -2x + 7 \\ h(x) &= (x+2)(x-3) \end{aligned}$$

Calculate the value of:

a) $g(1)$

b) $f(-\frac{1}{3})$

$$\overline{2K}$$

c) $h(-2)$

d) $g(k)$ [Your answer will have k in it]

$$\overline{2K}$$

9. Factor each of the following expressions.

a) $y = 4x^2 - 64$

b) $q(x) = 10x^2 - 7x - 3$

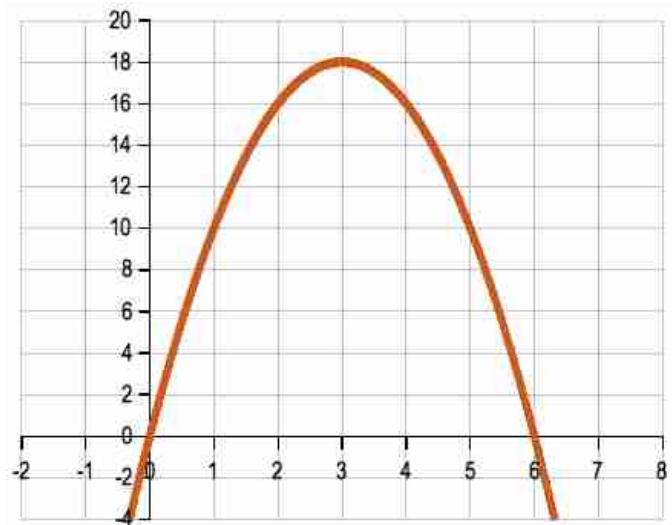
$$\overline{2A}$$

10. Solve for x where $x\left(\frac{1}{2}x+1\right)-12=-(x-4)(x+3)$

4 A

11. Find the equation of this parabola.

4 K



12. Consider two parabolas:

- One has equation $y = \frac{1}{2}(x-4)(x+4)$ and has its vertex at $(0, -8)$
- The other has the same x-intercepts, but goes through the point $(2, -12)$

How far apart are the vertices (vertexes) of the two parabolas?