C12 - 10.0 - Function Operations Review

1) Find if :
a) $f(x) = x + 2$
b) $f(3) =$
c) $f(x + 2) =$
d) $f(2x) =$

2) Find x if :
a) $f(x) = x + 2$
b) $f(x) = -4$
c) $f(x + 2) = x^2$

3) Find if :
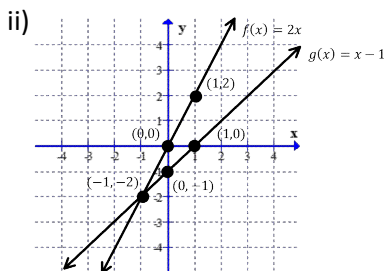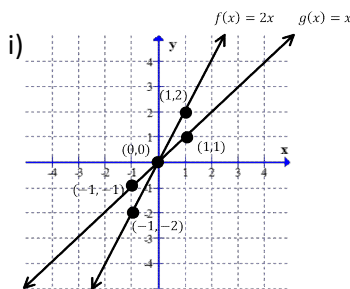a) $f(x) = x^2 - 1$
b) $f(-2) =$
c) $f(x + 1) =$

4) Find x if :
a) $f(x) = \dfrac{1}{x} - 2$
b) $f(x) = -\dfrac{3}{2}$
c) $f(x) = x + 1$
d) $f(x + 2) = 0$
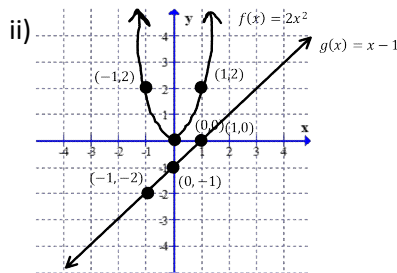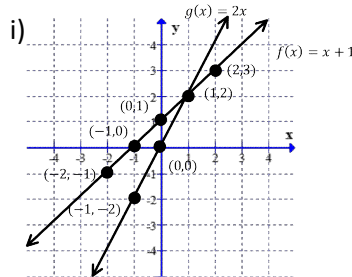
5) Find the Equation and
Graph the following if :
a) $h(x) = f(x) + g(x)$
b) $h(x) = f(x) - g(x)$
c) $h(x) = f(x) \times g(x)$
d) $h(x) = \dfrac{f(x)}{g(x)}$

i)

ii)

6) Find the Equation and
Graph the following if :
a) $h(x) = f(g(x))$
b) $h(x) = g(f(x))$
c) $h(x) = g(g(x))$

i)

ii)

7) Find $f(x)$ and $g(x)$ if :
$f(g(x)) = (x - 1)^2$
$f(g(x)) = x^2 - 6x + 9$
$f(g(x)) = (x - 3)^2 + 4$
$f(g(x)) = x^2 - 6x + 13$
$f(g(x)) = (x + 2)^3 + 1$
$f(g(x)) = (x + 2)^2 + 5(x + 2)$
$f(g(x)) = \dfrac{1}{x + 1}$
$f(g(x)) = \dfrac{4}{x - 3} - 2$
$f(g(x)) = \dfrac{1 - x}{x}$
$\underline{f(x) \ \& \ g(x) \neq x, 1, 0}$

8) Find $f(g(x))$ and $g(f(x))$.
Are $f(x)$ and $g(x)$ inverses of
each other?
a) $f(x) = \dfrac{x}{x + 1}$
b) $g(x) = \dfrac{x}{1 - x}$

9) Find the function of the area of a circle
with respect to its diameter.

10) Find the function of the volume of a
sphere with respect to its diameter.

11) Find the volume of a cone with respect
to its radius if the height is double the
radius.

12) Find the function of the volume of the
cube with respect to the radius of an
inscribed sphere to the cube.
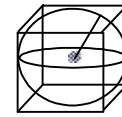
13) Find
$$g(x) = \frac{f(x + h) - f(x)}{x - h}$$
$if :$
a) $f(x) = x^2$
b) $f(x) = \dfrac{1}{x}$

14) Find points on $h(x) = g(f(x))$
from:
$f(x) : (-1,0), (0,1), (1,2)$
&
$g(x) : (-1,0), (0,1), (1,2)$