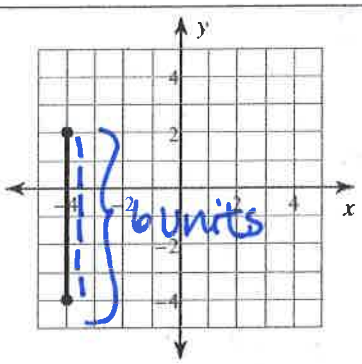
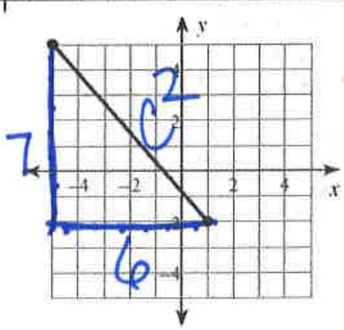
Name Key Date Period

Study Guide 2

Using the Distance Formula – Find the distance between the points in each situation:

Points: $x_1\ y_1$ $\quad x_2\ y_2$ (4,8) and (9,21)	$d=\sqrt{(x_1-x_2)^2+(y_1-y_2)^2}$	$d=\sqrt{(4-9)^2+(8-21)^2}$ $d=\sqrt{(-5)^2+(13)^2}$ $d=\sqrt{25+169}$ $d=\sqrt{194}$ $\boxed{d=\sqrt{194}}$ don't forget to square the result
Points: (-4, 7) and (-9, -1)	$d=\sqrt{(-4+9)^2+(7--1)^2}$ $d=\sqrt{5^2+8^2}$ $d=\sqrt{25+64}$ $d=\sqrt{89}$	
 6 units	umm... no distance formula needed, just count units $\boxed{d=6}$	
 7, 6, c^2	$7^2+6^2=c^2$ $49+36=c^2$ $\sqrt{85}=\sqrt{c^2}$	Use Pythagorean Theorem when line is on a graph. $c=\sqrt{85}$

If f(x) = g(x) + 2, then find the translation equation for f(x) for each of the following unique situations:

a) g(x) = 3x + 4 $\quad f(x)=\underbrace{3x+4}_{g(x)}+2$

$\boxed{f(x)=3x+6}$

b) $g(x) = 2x^2 + 4x - 10$ $\quad f(x)=\underbrace{2x^2+4x-10}_{g(x)}+2$

$\boxed{f(x)=2x^2+4x-8}$

c) $g(x) = 4(3)^x - 8$

$f(x)=\underbrace{4(3)^x-8}_{g(x)}+2$

$f(x)=4(3)^x-6$

Simplify each of the following situations:

$f(x) = g(x) + 3$ and $g(x) = x + 4$

Find f(3)

$g(x) = 3 + 4$
$g(x) = 7$
$f(x) = g(x) + 3$
$f(x) = 7 + 3$
$f(x) = 10$

$f(x) = g(x) + 3$ and $g(x) = 7x - 2$

Find f(3)

$g(x) = 7(3) - 2$
$g(x) = 21 - 2$
$g(x) = 19$
$f(x) = g(x) + 3$
$f(x) = 19 + 3$
$f(3) = 22$

$f(x) = g(x) + 3$ and $g(x) = -x + 25$

Find f(3)

$g(x) = -3 + 25$
$g(x) = 22$
$f(3) = g(x) + 3$
$f(3) = 22 + 3$
$f(3) = 25$

$f(x) = g(x) + 3$ and $g(x) = 4(2)^x$

Find f(3)

$g(x) = 4 \cdot 2^3$
$g(x) = 4 \cdot 8$
$g(x) = 32$
$f(x) = g(x) + 3$
$f(x) = 32 + 3$
$f(3) = 35$

Which of the following sequences could be generated by a quadratic function?

+1 +1 +1

a) {1, 2, 3, 4, ...}

+2 +6 +10
+4 +4

b) {-5, -3, 3, 13, ...}

c) {2, 4, 8, 12, ...}

+2 +4 +4

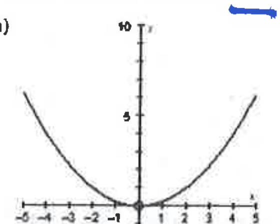
d) {2, 6, 18, 54, ...}

x3 x3 x3

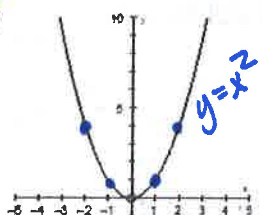
because the second difference is constant.

Which graph has a vertical stretch factor of $\frac{1}{2}$ when compared to the graph of $y = x^2$?

a)

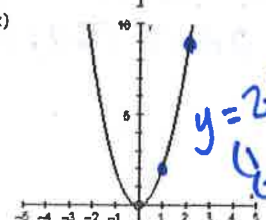


b)



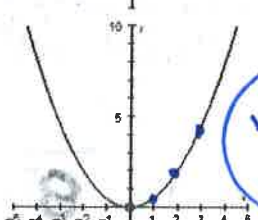
$y = x^2$

c)



$y = 2x^2$
(1, 2)
(2, 8)

d)

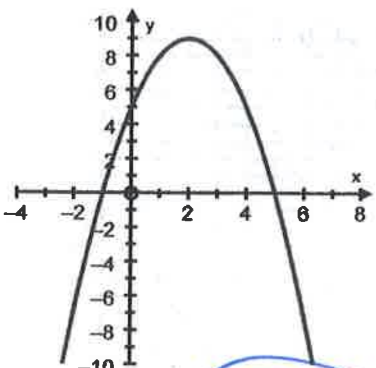


1, $\frac{1}{2}$
2, 2
3, $4\frac{1}{2}$

actually, its a "shrink" but stretch is a term often used- but since they gave "factor of $\frac{1}{2}$" we have to assume it is a shrink

For the function $y = ax^2 + bx + c$, the y-intercept is **always**:

a) $-\frac{b}{2a}$ b) c c) $\frac{c}{a}$ d) $\frac{4ac - b^2}{4a}$



The function $y = ax^2 + bx + c$ is represented by the following graph. Which of the following statements is true?

a) ~~a>0~~ and c> 0
b) ~~a>0~~ and c<0
c) a<0 and c<0
d) a<0 and c>0

a has to be negative in order to open down.
c has to be positive in order to cross at +5.
or greater than zero.