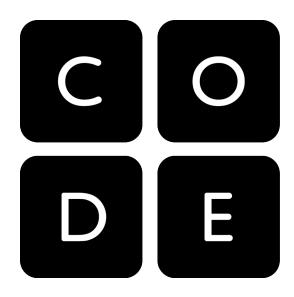
Name: _____ Course: ____



CS in Algebra powered by Bootstrap

Student Workbook

Name:	Date:	Per:
	rse Engine	ering CO
Thing in the gam	e What changes abou	ut it? More specifically

Name: _	Date:	Per:
	Video Game Planning	C O D E
	Code ora CS in Algebra - Stage 1	

Use this form to plan out your video game. Once your game is complete, the player will move up and down, the target and danger will move from left and right, and you will earn points by touching the target and lose points by touching the danger.

Created by:

The game takes place in:

This will be the background image in your game

The player is a:

The player moves up and down

The target is a:

The Target moves left and right

The danger is a:

The Danger moves left and right

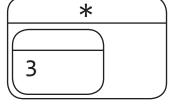
Evaluation Blocks

C O

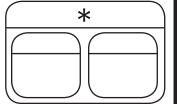
Code.org CS in Algebra - Stage 2

$$(25 + 14) - 12$$

$$(3 + 12) * 16$$



+	
	J



)
$\overline{}$	

$$(12 * 4) / 3$$

Name.		Date	FE	·
	Functi	ons!		C O E
Code.org CS in /	Algebra - Stage 9			
	:		>	
name	doi	main		range
Example:	() =		
Example:				
Define:	() =		
	:	main		
name				range
Example:	() =		
Example:	() =		
Define:	() =		
			->	
name	:doi	main		range
Example:	() =		
Example:	() =		
Define:	() =		
	:	main	>	
name				range
Example:	() =		
Example:	() =		
Define:	() =		

	Name:		Date:	Per:
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The Design Recipe



Code.org CS in Algebra

Description:

Cont	tract and F	Purp	ose St	taten	nent
Every con	tract has three par	ts			
functio	: n name		dom	ain	> range
		what	does the fu	nction de	0?
Exar	nples				
Write som	e examples for you	ur funct	tion in actio	n	
Example:	function name	_(input(s)) =	what the function produces
Example:	function name	_(input(s)) =	what the function produces
Defi	nition				
Write the	definition, giving v	ariable	names to a	ll your in	out values
Define:	function name	(ariables	_)=	

Name:		Date:	F	Per:
roc	roblem ket-he			C O E
Write a function of seconds that	on called 'roo at have passo	ts off, traveling cket-height' tha ed since the roc e rocket at that	nt takes in the cket took off, a	number
Contract	and Purp	oose Stater	nent	
Every contract has	three parts		->	
function name		domain		range
	what	does the function o	10?	
Example	S			
Write some examp	oles for your func	tion in action		
	on name) = _ input(s)	what the function	on produces
Example:	(on name) =) =	what the function	on produces
Definition	n			
Write the definition	n, giving variable	names to all your in	nput values	
Define:	name v	yariables) =		

word prob updat	lem te-target	Per: C O D E
Code.org CS in Al	gebra - Stage 12	
target' which takes	e Design Recipe to write s in the target's x-coordir which is 10 pixels to the	nate and produces the
Contract and	d Purpose Statem	ent
Every contract has three	parts	
function name	domain	> range
	what does the function do	?
Examples		
Write some examples for	r your function in action	
Example: function name	ne	what the function produces
Example: function name	ne	what the function produces

Definition

Name:		Date:		Per:
	word problem update	-danger		C O D E
	Code.org CS in Algeb	ra - Stage 12		
dange	r' which takes i	esign Recipe to was the danger's x- nich is 10 pixels to	coordinate and	•
Cor	ntract and I	Purpose Sta	tement	
Every co	ntract has three pai	ts		
functi	:: ion name	domain	>	 range
		what does the funct	ion do?	
Exa	mples			
Write so	me examples for yo	ur function in action		
Example		_(tion produces
Example	: function name	_(what the function	tion produces
Def	inition			
Write the	e definition, giving v	variable names to all yo	our input values	
Define:	function name	() : 	=	

Name:	Date:	Per:
word proble		C O D E
Code.org CS in Alge	ebra - Stage 15	

Description: Write a function 'safe-left?', which takes in an x-coordinate and checks to see if it is greater than -25.

domain	>range
what does the function	on do?
function in action	
) :) :	=what the function produces
) :) :	=what the function produces
<i>†</i>	what does the function function in action input(s)

Name:	Date:	Per:
	rd problem afe-right?	C O D E
Code	e.org CS in Algebra - Stage 15	

Description: Write a function 'safe-right?', which takes in an x-coordinate and checks to see if it is less than 425.

Cont	ract and F	Purpose Sta	ater	nent
	tract has three par			
	::			>
function	n name	domail	n	range
		what does the fund	 ction a	10?
Exan	nples			
Write som	e examples for you	ur function in action		
Example: _	function name	_(input(s)	_)=_	what the function produces
Example: _	function name	_(input(s)	_)=_	what the function produces
Defi	nition			
Write the	definition, giving v	ariable names to all	your in	put values
Define:	function name	(; variables) =	

Name: _		Date:		Per:		
	word problem ONSCIE			C O D E		
	Code.org CS in Algebr	a - Stage 15				
charac	Description : Write a function 'onscreen?', which takes in a character's x-coordinate and checks to see if it is safe on the left and on the right.					
Cor	ntract and F	Purpose St	atement			
Every co	ontract has three par	ts		->		
funct	ion name	doma	ain	> range		
		what does the ful	nction do?			
Exa	mples					
Write sc	me examples for you	ur function in action	7			
Example	e: function name	_(input(s)) =	function produces		
Example	e:function name	input(s)) = what the i	function produces		
Def	inition					
Write th	Write the definition, giving variable names to all your input values					
Define:	function name	variables	_)=			

Name:	Date:	Per:
word probler COST	n	C O D E
Code.org CS in Algeb	ra - Stage 16	
Cheese (\$9.00), Chicken (\$1	hired you as a programmer. They 1.25), and Broccoli (\$10.25). Write ng and outputs the cost of a pizza	e a function called cost which
Contract and I	Purpose Statemer	nt
Every contract has three par		
function name	domain	> range
	what does the function do?	
Examples		
Write some examples for yo	ur function in action	
Example:	() =	
Example:		
Example:		·····
Example:	_() =	
Definition		
Write the definition, giving v	variable names to all your input va	alues
Define: function name	() =) =	

Name:			Date:_		Per:
	word problem update-p		/er		C O D E
	Code.org CS in Algebra - Sta	ige ib			
	ns: Write a function called and the player's y-coordin	-			kes in the keycode of the key y-coordinate.
Con	tract and Pur	pos	e Sta	atem	ent
Every co.	ntract has three parts				
functi	:: ion name		domai	n	> range
	who	at does	the fund	ction do?	
Exa	mples				
Write soi	me examples for your fur	nction in	action.		
Example	: <u>update-player</u> (38	240	_)=	240 + 10
Example	: <u>update-player</u> (40	240	_)=	240 - 10
Example	: <u>update-player</u> (38	250	_)=	
Example	: <u>update-player</u> (40	250	_)=	
Def	inition				
Write the	e definition, giving variab	le name	s to all	your inpu	t values
Define: _	function name	variable	 25) =	

Name: Date:	Per:
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Key Code Reference

С	0
D	E

Code.org CS in Algebra - Stage 16

When you press a key on your keyboard, a unique numeric code is sent to your computer, which is then translated into a letter, number, or command. Use this handy key code reference sheet to make your Player sprite respond to different key presses.

Key	Code	Key	Code
left arrow	37	G	71
up arrow	38	Н	72
right arrow	39	I	73
down arrow	40	J	74
0	48	K	75
1	49	L	76
2	50	M	77
3	51	N	78
4	52	0	79
5	53	Р	80
6	54	Q	81
7	55	R	82
8	56	S	83
9	57	Т	84
Α	65	U	85
В	66	V	86
С	67	W	87
D	68	X	88
E	69	Y	89
F	70	Z	90

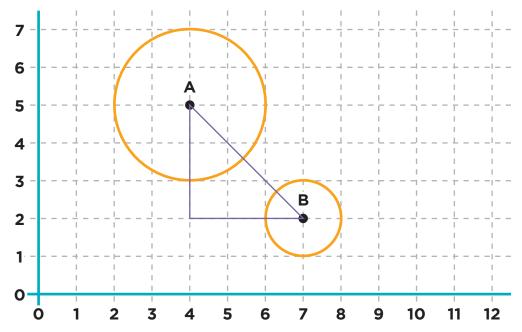
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Name	Date	

Collision Detection



Code.org CS in Algebra - Stage 19

Graph #1



On the graph:

Label the right angle as C Label segment AB as c Label segment AC as b Label segment CB as a

- 1. What is the radius of circle A?
- 2. What is the radius of circle B?
- 3. What is Radius A + Radius B
- 4. Do the circles overlap? (true/false)
- 5. What is the length of side a?
- 6. What is the length of side b?
- 7. Estimate the length of side c?
- 8. What is $a^2 + b^2$

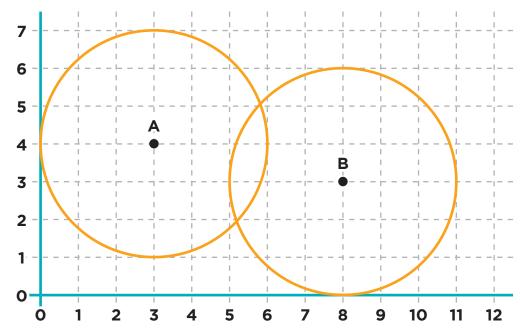
Name:	Date:	Per·
Name	Date	

Collision Detection



Code.org CS in Algebra - Stage 19

Graph #2



On the graph:

Draw a segment from point A to point B

Label segment AB as c

Draw a right triangle using segment c as the hypotenuse.

Label the right angle as C Label segment AC as b Label segment CB as a

- 1. What is the radius of circle A?
- 2. What is the radius of circle B?
- 3. What is Radius A + Radius B
- 4. Do the circles overlap? (true/false)
- 5. What is the length of side a?
- 6. What is the length of side b?
- 7. Estimate the length of side c?
- 8. What is $a^2 + b^2$

- _____
- ____
- ____
- _____
- ____
- ____
- ____

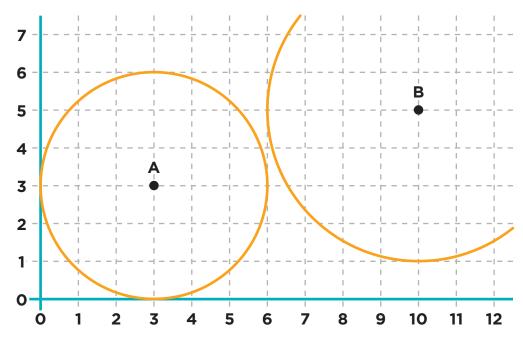
Name:	Date:	Pei
Tarric:	Date:	1 01

Collision Detection



Code.org CS in Algebra - Stage 19

Graph #3



On the graph:

Draw a segment from point A to point B

Label segment AB as c

Draw a right triangle using segment c as the hypotenuse.

Label the right angle as C Label segment AC as b

Label segment CB as a

- 1. What is the radius of circle A?
- 2. What is the radius of circle B?
- 3. What is Radius A + Radius B
- 4. Do the circles overlap? (true/false)
- 5. What is the length of side a?
- 6. What is the length of side b?
- 7. Estimate the length of side c?
- 8. What is $a^2 + b^2$

- ____
- ____
- ____
- _____
- ____
- ____
- ____

Name:		Date	ý:		Per:
	vord problemine-len	gth			C O D E
numbers	ns : Write a fur s and returns t the smaller no	he difference	e betwe	een them. It	takes in two should always
Cont	ract and P	urpose S	tater	nent	
Every cont	ract has three part.	S		->	
function	n name	don	nain		range
		what does the fu	unction c	10?	
Exan	nples				
Write some	e examples for you	r function in actio	n		
Example: _	line-length	()=_	10 -	5
	function name	input(s)		what the funct	ion produces
Example: _	line-length function name	(2 8 input(s))=_	8 - what the funct	·
Defin	nition				
Write the d	definition, giving va	riable names to a	all your ir	nput values	
Define:	(unction name	variables			

Name:		Date	9:	Pe	er:
wo di	rd problem stanc	e			C O E
Code	e.org CS in Algebra	a - Stage 20			
px: Tpy: Tcx: Tcy: T	he x-coordina he y-coordina he x-coordina he y-coordina	ion 'distance', vate of the playe ate of the playe ate of another g ate of another g e formula to ref	er er game char game char	acter acter	en both points
Contra	ict and F	Purpose S	tatem	ent	
Every contrac	t has three part	⁺ 5		->	
function na	ame	don	nain		range
		what does the fo	unction do?	,	
Examp	oles				
Write some ex	xamples for you	ır function in actio	on		
				what the function	n produces
Example:	unction name	input(s)) =	what the function	n produces
Definit	tion				
Write the defi	inition, giving va	ariable names to a	all your inpu	ıt values	
Define:	ction name	variables) =		

Name:		Date:	P	er:
word prok				C O D E
py: The y-coccx: The x-coo	ordinate of the pordinate of the ordinate of anotordinate of anotordinate of anotordinate	player player ther game ch ther game ch	naracter naracter	x and y
Contract an	d Purpos	e Stater	nent	
Every contract has thre	e parts			
function name	:	domain	>	range
	what does	the function a	10?	
Examples				
Write some examples for	or your function i	n action		
Example:	() = _	what the function	n produces
	·			
Example :	me inpu) = ıt(s)	what the function	n produces
Definition				
Write the definition, giv	ring variable name	es to all your in	put values	
Define:	(variabi) = /es		

	Example									
t Log	Range									
Contract Log	Domain									
	Name									

	Example									
t Log	Range									
Contract Log	Domain									
	Name									