Tulare County Office of Education

Jim Vidak, County Superintendent of Schools

Using SBAC Tools to Support Powerful Instruction

SBAC Math Handout

Smarter Balanced Assessment Consortium

Grade 11

Tulare County Office of Education
Jim Vidak, County Superintendent of Schools

High School SBAC Assessment

Course 1	Course 2	Course 3	Suggested Course	Claim 1: Concepts and Procedures 19-22 Total Questions -At least 7 CAT items will be DOK 2 or higher		Claim 2: Problem Solving 8-10 Total Questions -At least 2 CAT items will be DOK 3 or higher -80% of Claim 2 & 4 comes from Standards below	Claim 4: Modeling and Data Analysis 8-10 Total Questions -At least 2 CAT items will be DOK 3 or higher -80% of Claim 2 & 4 comes from Standards below	Claim 3: Communicating Reasoning 8-10 Questions -At least 2 CAT items will be DOK 3 or higher. -80% of Claim 3 comes from standards below.
			2	***Target A (Supporting)*** ***N-RN.A*** *Extend the properties of exponents to rational exponents* *N-RN.1, 2*	1			N-RN.A
			2	***Target B (Supporting)*** ***N-RN.B*** *Use properties of rational and irrational numbers* *N-RN.3*				N-RN.B N-RN.3
			1	***Target C (Supporting)*** ***N-Q.A*** *Reason quantitatively and use units to solve problems.* *N-Q.1*	1	N-Q.A	N-Q.A	
			2, 3	**Target D (Priority)** **A-SSE.A** Interpret the structure of expressions A-SSE.2	**2**	A-SSE.A		A-SSE.2
			2	**Target E (Priority)** **A-SSE.B** Write expressions in equivalent forms to solve problems. A-SSE.3a,b,c		A-SSE.B	A-SSE.B	
			2, 3	**Target F (Priority)** **A-APR.A** Perform arithmetic operations on polynomials A-APR.1	**1**			A-APR.1
			3					A-APR.B (2-3)
			3					A-APR.C.4
			3					A-APR.D.6
			1, 2, 3	**Target G (Priority)** **A-CED.A** Create equations that describe numbers or relationships. A-CED.1,2	**4-5**	A-CED.A	A-CED.A	
			1, 3	**Target H (Priority)** **A-REI.A** Understand solving equations as a process of reasoning and explain the reasoning. A-REI.2		A-REI.2	A-REI.A	A-REI.A A-REI.1 A-REI.2
			1, 2	**Target I (Priority)** **A-REI.B** Solve equations and inequalities in one variable A-REI.3, 4a,b		A-REI.B	A-REI.B	
			1, 2			A-REI.C (5-9)	A-REI.C (5-9)	A-REI.C (5-9)

Tulare County Office of Education
Jim Vidak, County Superintendent of Schools

High School SBAC Assessment

Course 1	Course 2	Course 3	Suggested Course	Claim 1: Concepts and Procedures 19-22 Total Questions -At least 7 CAT items will be DOK 2 or higher		Claim 2: Problem Solving 8-10 Total Questions -At least 2 CAT items will be DOK 3 or higher -80% of Claim 2 & 4 comes from Standards below	Claim 4: Modeling and Data Analysis	Claim 3: Communicating Reasoning 8-10 Questions -At least 2 CAT items will be DOK 3 or higher. -80% of Claim 3 comes from standards below.
			1, 3	**Target J (Priority)** **A-REI.D** Represent and solve equations and inequalities graphically. A-REI.10,11,12	**2**	A-REI.D		A-REI.10 A-REI.11
			1	**Target K (Priority)** **F-IF.A** Understand the concept of a function and use function notation. F-IF.1,3	**2**	F-IF.A		F-IF.1
			1, 2, 3	**Target L (Priority)** **F-IF.B** Interpret functions that arise in application in terms of a context. F-IF.4,5,6	**3-4**	F-IF.B	F-IF.B	F-IF.5
			1, 2, 3	**Target M (Priority)** **F-IF.C** Analyze functions using different representations. F-IF.7a,b,c,e; 8a,b; 9		F-IF.C	F-IF.C	F-IF.9
			1, 2	**Target N (Priority)** **F-BF.A** Build a function that models a relationship between two quantities. F-BF.1,1a,2		F-BF.A	F-BF.A	
			1, 2, 3					F-BF.B.3, 4
			1, 2, 3				F-LE.A (1-4)	
			1				F-LE.B (5)	
			3					F-TF.A.1, 2
			3				F-TF.B.5	
			2					F-TF.C.8
			1					G-CO.A (1-5)
			1					G-CO.B (6-8)
			2					G-CO.C. 9, 10, 11
			2					G-SRT.A (1-3)
			2					G-SRT.B (4-5)
			2	***Target O (Supporting)*** ***G-SRT.C*** *Define trigonometric ratios and solve problems involving right triangles.* *G-SRT.6,7,8*	2	G-SRT.C		
			2				G-GMD.A.3	
			3				G-MG.A (1-3)	

Tulare County Office of Education
Jim Vidak, County Superintendent of Schools

High School SBAC Assessment

Course			Suggested Course	Claim 1: Concepts and Procedures 19-22 Total Questions -At least 7 CAT items will be DOK 2 or higher		Claim 2: Problem Solving 8-10 Total Questions -At least 2 CAT items will be DOK 3 or higher -80% of Claim 2 & 4 comes from Standards below	Claim 4: Modeling and Data Analysis	Claim 3: Communicating Reasoning 8-10 Questions -At least 2 CAT items will be DOK 3 or higher. -80% of Claim 3 comes from standards below.
1	2	3						
			1	***Target P (Supporting)*** ***S-ID.A*** *Summarize, represent, and interpret data on a single count or measurement variable.* *S-ID.1,2,3*	1-2		S-ID.A	
			1				S-ID.B (5-6)	
			1			S-ID.C (7-9)		
			3				S-IC.A.1	
			3				S-IC.B (3-6)	
			2			S-CP.A (1-5)		

<table>
<tr><th></th><th>Item</th><th>Claim (circle one)</th></tr>
<tr><td>A</td><td>The relationship between Jack's distance from home and the time since he left home is linear, as shown in the table.

<table><tr><th>Time (hrs)</th><th>Distance (mi)</th></tr><tr><td>0</td><td>7.5</td></tr><tr><td>2</td><td>17.5</td></tr><tr><td>4</td><td>27.5</td></tr></table>
Based on the values in the table, determine whether each statement is true. Select True or False for each statement.

<table><tr><th>Statement</th><th>True</th><th>False</th></tr><tr><td>Jack's initial distance from home is 7.5 miles.</td><td></td><td></td></tr><tr><td>Jack's distance increases by 5 miles every 1 hour.</td><td></td><td></td></tr><tr><td>Jack's distance from home at 3 hours is 23.5 miles.</td><td></td><td></td></tr></table></td><td>1 2 3 4</td></tr>
<tr><td>B</td><td>Example Stem 1: A clerk earns $125 per day, plus a commission equal to 10% of her sales, s. The clerk earns less than $180 on Monday.

Enter an inequality that represents all possible values for the clerk's sales, s, on Monday.</td><td>1 2 3 4</td></tr>
<tr><td>C</td><td>Melissa drew a right triangle.
The length of the hypotenuse is $\sqrt{130}$ units.
The perimeter is $14 + \sqrt{130}$ units.
Find the other two side lengths of Melissa's triangle. Enter one side length into each response box.</td><td>1 2 3 4</td></tr>
<tr><td>D</td><td>The equation of a circle in the coordinate plane with center (0, 0) and radius 5 is shown:

$x^2 + y^2 = 25$

Fill in the table to show an example of two ordered pairs that show this equation does not define y as a function of x.

<table><tr><th>x</th><th>y</th></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table></td><td>1 2 3 4</td></tr>
</table>

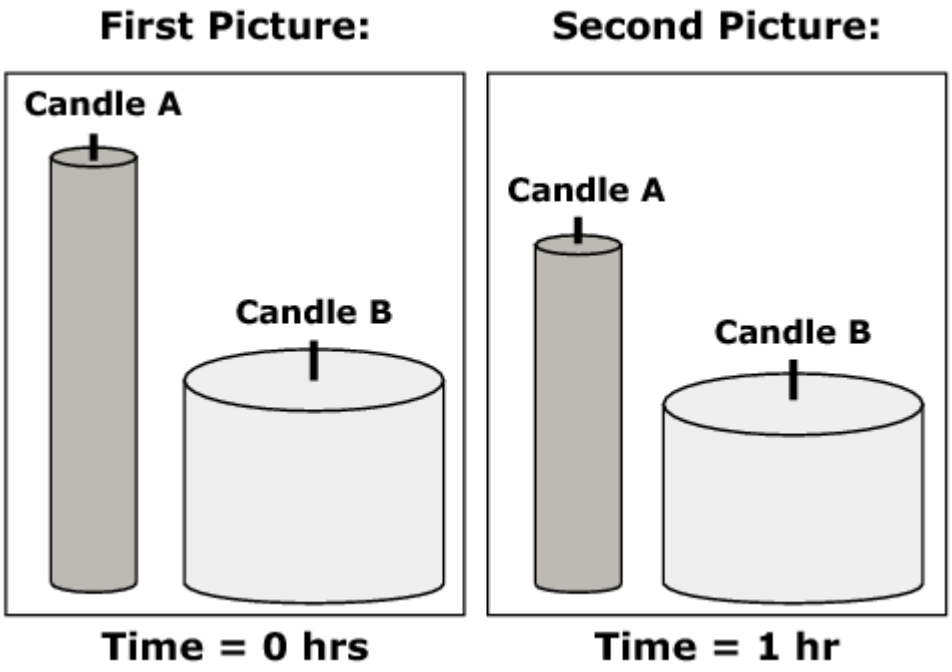
Mathematics

Item	DOK Circle one	Comments
#1	1 2 3 4	
#2	1 2 3 4	
#3	1 2 3 4	
#4	1 2 3 4	
#5	1 2 3 4	
#6	1 2 3 4	
#7	1 2 3 4	
#8	1 2 3 4	

Lights, Candles, Action!

Your friend Abbie is making a movie. She is filming a fancy dinner scene and she has two types of candles on the table. She wants to determine how long the candles will last.

She takes a picture, lights the candles, and then lets them burn for 1 hour. She then takes a second picture. You can assume that each candle burns at its own constant rate.



Candle Type A initial height = 20 cm
Candle Type B initial height = 10 cm

Candle Type A height after burning for 1 hour = 16 cm
Candle Type B height after burning for 1 hour = 9 cm

You will use this information to help Abbie think about the candles she might use for her film.

1

Candles A and B are lit at the same time. What will be the height, in cm, of each candle after 3 hours of burning?

Candle Type A: ☐

Candle Type B: ☐

2

Candles of each type were lit at the same time. Abbie thinks that since Candle Type A burns more quickly than Candle Type B, that it will burn out (have a height of 0 cm) first.

Julie thinks that since Candle Type B starts out much shorter than Candle Type A, it will be the candle to burn out first.

Which candle will burn out first? Give a mathematical explanation to convince Abbie and Julie of your solution. Clearly identify the quantities involved.

3

Abbie has 3 hours left to film. She lights a **new** Candle Type A and Candle Type B and then starts filming.

In the 3 hours she has left, will Abbie capture the moment when the candles are exactly the same height?

Explain to Abbie how you can determine the answer.

4

You have decided to use functions to help Abbie think about the candles.

You show her how to represent the height of a candle, ***h***, as a function of time, ***t***, using this equation:

$$h = k + nt$$

First, explain to Abbie what **k** and **n** represent in order to model the different candles. Be specific in your explanation.

5

Now, choose either Candle A or Candle B to create an equation that will tell Abbie the height of the candle at ***t*** hours after it is lit.

Determine what the numerical values for **k** and **n** should be for the candle you chose.

Using these **k** and **n** values, write an equation that tells Abbie the height ***h*** of the candle, in cm, at ***t*** hours after it is lit.

6

For her next film, Abbie wants candles that will burn for exactly 8 hours. You want to give her a choice by designing two different candles (Type C and Type D).

Using the equation $h = k + nt$, determine two different pairs of values for **k** and **n** that will meet the requirement to burn down to a height of 0 cm in exactly 8 hours.

Complete the table to show two possible sets of values for **k** and **n** for your new candle designs.

	k	**n**
Candle Type C		
Candle Type D		

Mathematics Interim Assessment Blocks

Grade 3	Grade 4	Grade 5
Operations and Algebraic Thinking	Operations and Algebraic Thinking	Operations and Algebraic Thinking
Number and Operations – Fractions	Number and Operations – Fractions	Number and Operations – Fractions
Measurement and Data	Measurement and Data	Measurement and Data
Number and Operations in Base Ten	Number and Operations in Base Ten	Number and Operations in Base Ten
Geometry*	Geometry	Geometry
Mathematics Performance Task	Mathematics Performance Task	Mathematics Performance Task

Grade 6	Grade 7	Grade 8
Ratios and Proportional Relationships	Ratio and Proportional Relationships	Expressions & Equations I
The Number System	The Number System	Expressions & Equations II (with Prob/Stat)
Expressions and Equations	Expressions and Equations	The Number System*
Geometry	Geometry	Functions
Statistics and Probability	Statistics and Probability	Geometry
Mathematics Performance Task	Mathematics Performance Task	Mathematics Performance Task

High School	
Algebra and Functions I - Linear Functions, Equations, and Inequalities	Geometry Congruence*
Algebra and Functions II - Quadratic Functions, Equations, and Inequalities	Geometry Measurement and Modeling*
Geometry and Right Triangle Trigonometry	Interpreting Functions*
Statistics and Probability	Number and Quantity*
Seeing Structure in Expressions/Polynomial Expressions*	Mathematics Performance Task

*** IAB is new for 2017–18**