

CONTEXTUALIZED LESSONS TO TEACH BASIC SKILLS

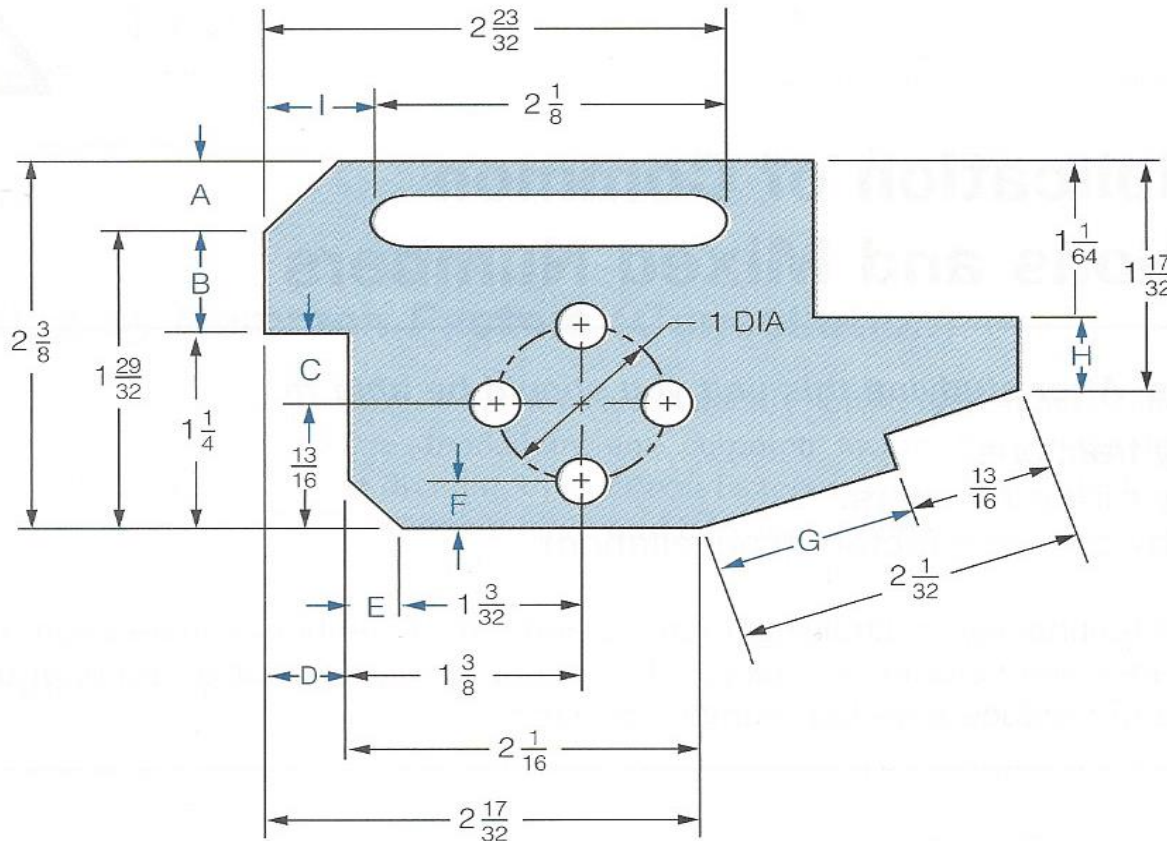


Faculty collaborate to integrate basic skills and career technical training



Providing context for critical thinking; Problems have visual aids that support the addition & subtraction of fractions

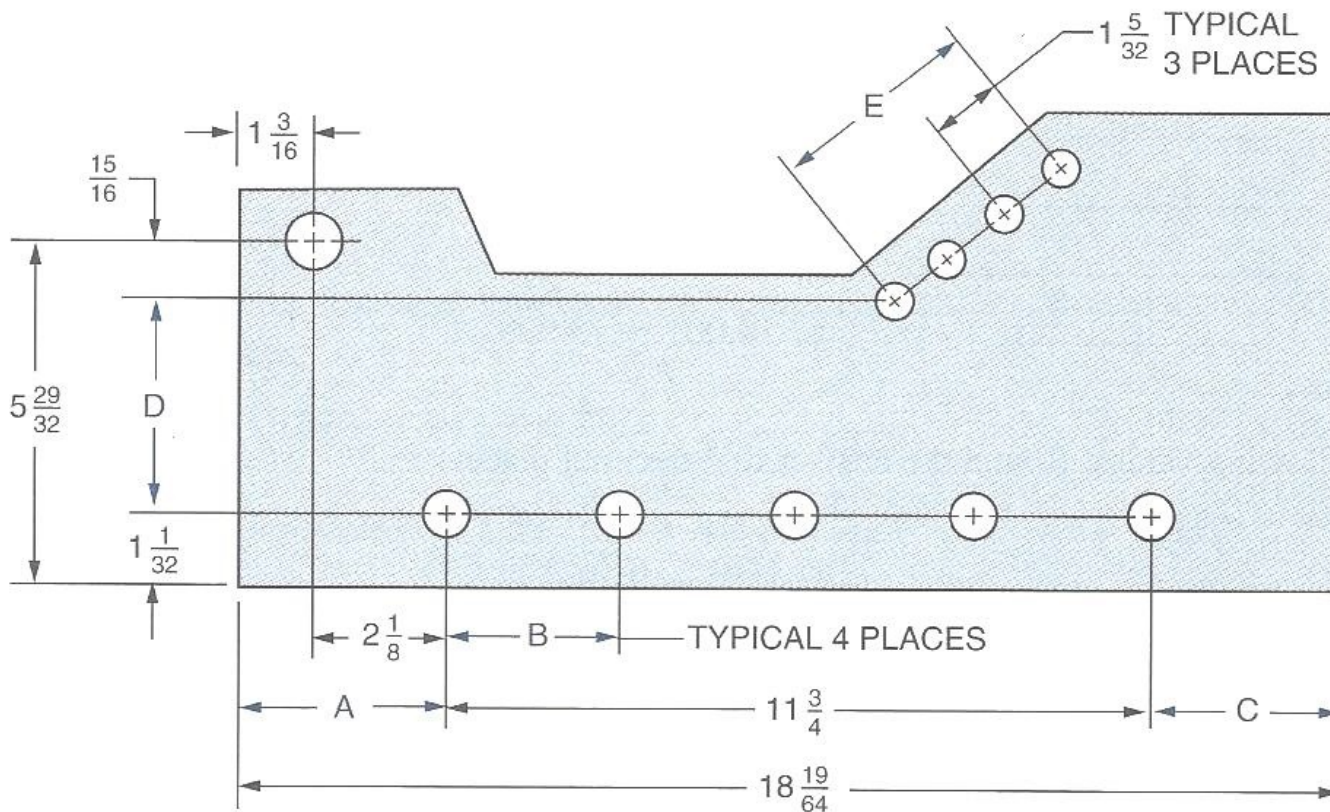
5. Determine dimensions A, B, C, D, E, F, G, H, and I of the plate in Figure 3-7. All dimensions are in inches.



- A = _____
 B = _____
 C = _____
 D = _____
 E = _____
 F = _____
 G = _____
 H = _____
 I = _____

Math & Welding

Compute the dimensions for A, B, C, D, & E of the following support bracket.
All dimensions are given in inches

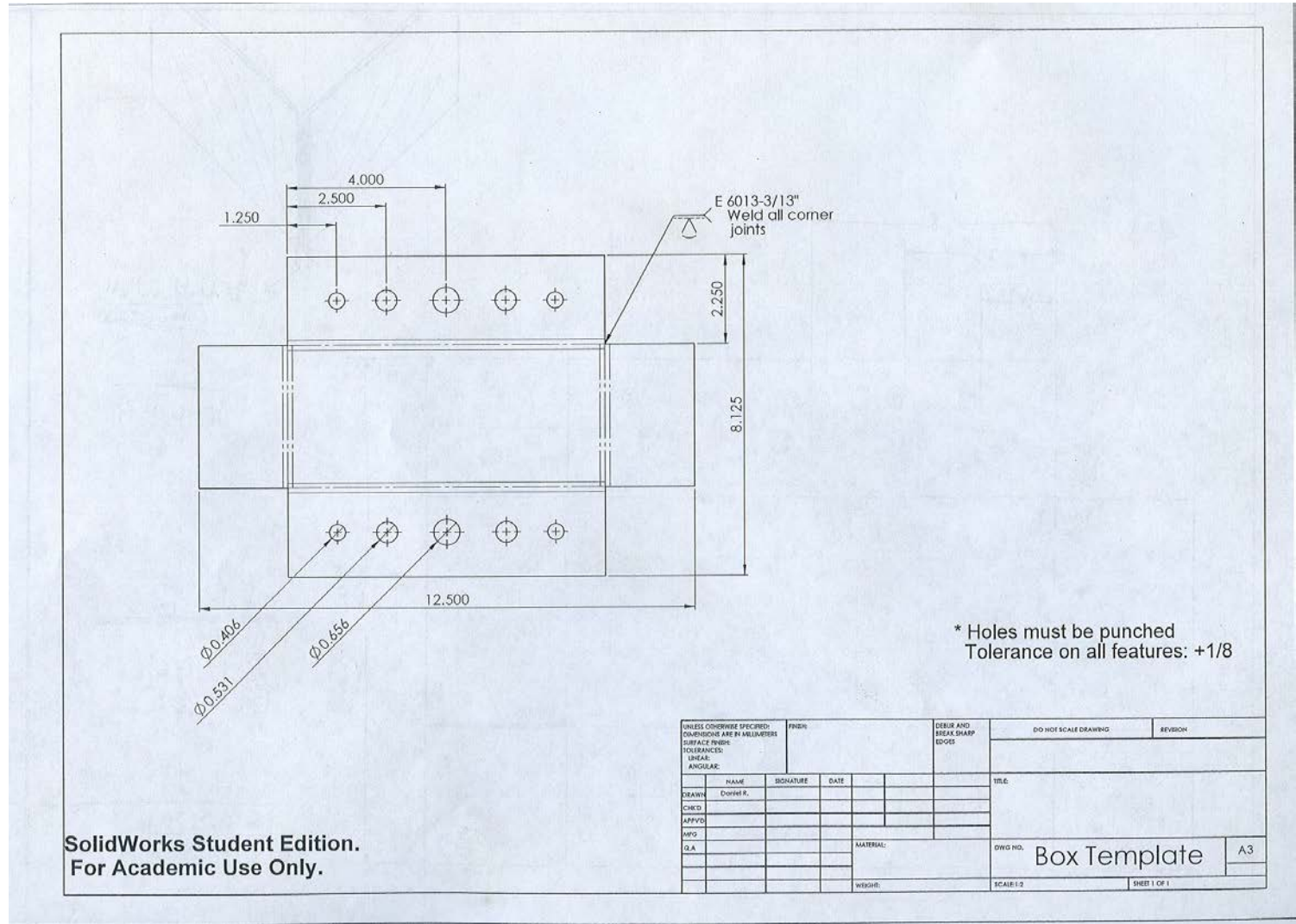


A = _____
 B = _____
 C = _____
 D = _____
 E = _____



HELP

Math in Print Reading



SolidWorks Student Edition.
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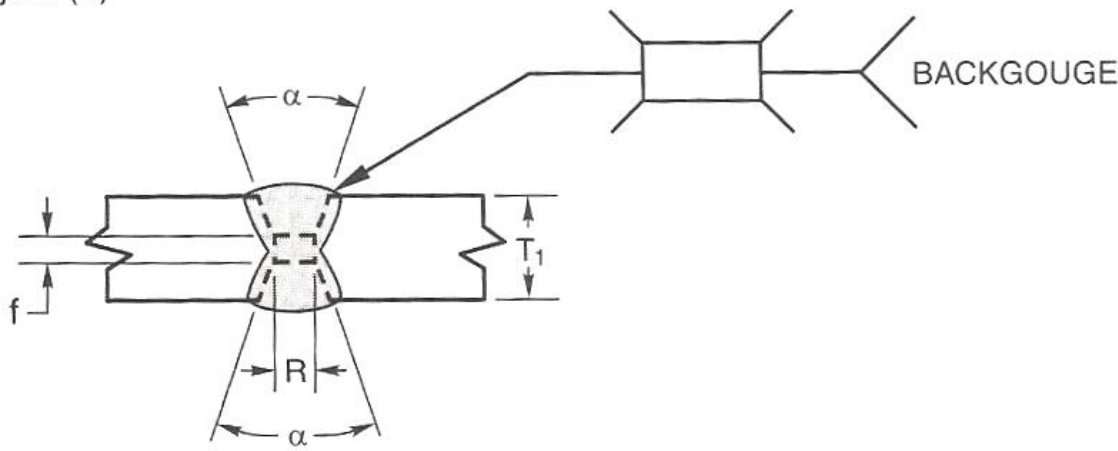
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS SURFACE FINISH: TOLERANCES: LINEAR: ANGULAR:				PINS:		DEBUR AND BREAK SHARP EDGES:		DO NOT SCALE DRAWING		REVISION	
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Q.A.								MATERIAL:		DWG NO. Box Template A3	
								WEIGHT:		SCALE: 1:2 SHEET 1 OF 1	

**Contextualized
learning
happens in the
classroom & in
the shop**



Math in Fit-up

Double-V-groove weld (3)
Butt joint (B)



		Tolerances	
		As Detailed (see 3.13.1)	As Fit-Up (see 3.13.1)
		$R = \pm 0$	$+1/4, -0$
		$f = \pm 0$	$+1/16, -0$
		$\alpha = +10^\circ, -0^\circ$	$+10^\circ, -5^\circ$
Spacer	SAW	± 0	$+1/16, -0$
	SMAW	± 0	$+1/8, -0$

Welding Process	Joint Designation	Base Metal Thickness (U = unlimited)		Groove Preparation			Allowed Welding Positions	Gas Shielding for FCAW	Notes
		T ₁	T ₂	Root Opening	Root Face	Groove Angle			
SMAW	B-U3a	U	—	R = 1/4	f = 0 to 1/8	$\alpha = 45^\circ$	All	—	d, e, h, j
		Spacer = 1/8 × R		R = 3/8	f = 0 to 1/8	$\alpha = 30^\circ$	F, V, OH	—	
				R = 1/2	f = 0 to 1/8	$\alpha = 20^\circ$	F, V, OH	—	
SAW	B-U3a-S	U Spacer = 1/4 × R	—	R = 5/8	f = 0 to 1/4	$\alpha = 20^\circ$	F	—	d, h, j

Co-operative Learning

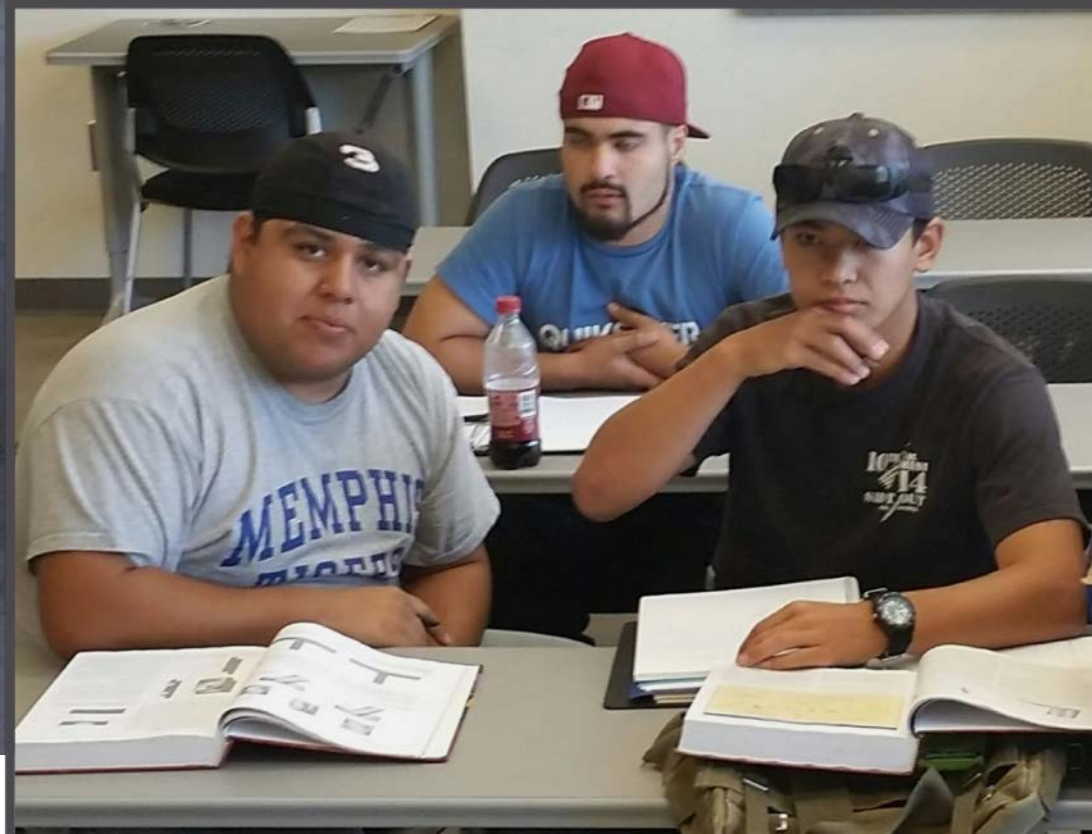
Students connect through critical thinking



Engagement

- Despite many definitions, engagement is directly related to emotional, behavioral, and cognitive factors (Conner, 2009). These factors relate directly to what people feel, think, and do (Conner, 2009).

Learning communities provide strong peer support among students



Core Strategies for Contextualized Learning

- Relevant training programs through certificates and degrees
- Certificates are “stackable” into degree/transfer
- Focus on careers in demand and ongoing advancement opportunities.
- Group projects - Team player
- Making the connection that math is relevant to being successful in their trade

Positive Outcomes

- **Empowerment**

- Amazed at what they could accomplish
- Never thought of advanced education
- Proactive progressive participation in learning

- **Sense of accomplishment**

- Stackable Certificates
- Camaraderie amongst the students
- Tangible results at the end of every day

- **Curiosity**

- Understanding that math is essential to your life & career.
- Crossover disciplines enable students to advance to successively higher levels of education and career in an industry sector.

WELD TECHNOLOGY



Contextualized based learning makes math relevant to the trade: aligning the way we teach to the way individuals learn –

Same Competencies so there is no need for new curriculum



Math in Context workshop







Training for CTE Instructors

- Review Math Sequence
- Discuss Concerns from both CTE and Math Instructors

Ex. Role of calculators

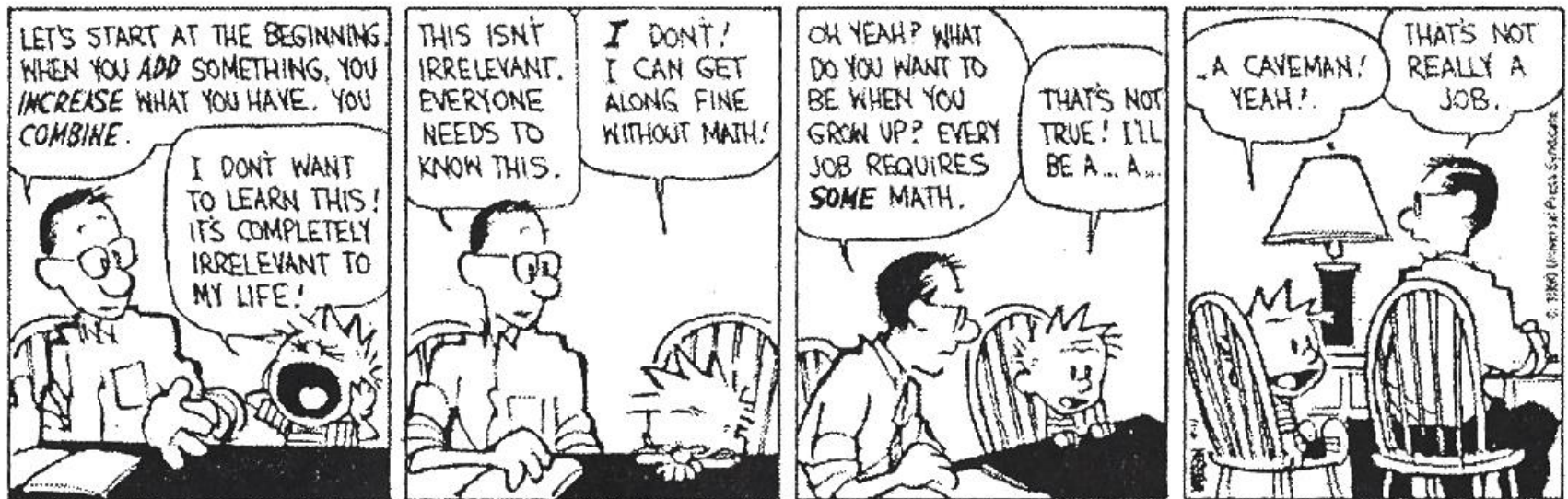
- Sustainability of joint efforts
- Plan follow up meeting (see flyer)
- Course offerings for Spring 2017 (see flyer)



Questions?

Calvin and Hobbes

by Bill Watterson



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