

What's Different with Expert TA?

Customizable Assignments

Customizable Assignments are designed to emphasize student learning and to provide the instructor with an accurate assessment of students' work. This includes a full history of a student's incorrect submission attempts and access to help. In this mode of Expert TA, as a student goes through an assignment they are able to access hints and receive feedback specific to mistakes they make. The instructor has complete control over every aspect of the assignment; the table below shows what instructors are able to specify. For each assignment the instructor can customize these grade preferences. He or she can set whether students have access to hints and feedback, change deduction amounts and the number of submission attempts allowed for each part, and select the style in which feedback will be presented to the student.

Instructor Grade Preferences

Students are allowed to access Hints?	<input checked="" type="radio"/> Yes <input type="radio"/> No
Deduction for each accessed Hint	3 <input type="text"/> (% of part value) Range: 0 to 100
Number of allowed Submission Attempts	3 <input type="text"/> (number of attempts) Range: 1 to 20
Deduction for each Incorrect Submission Attempt	5 <input type="text"/> (% of part value) Range: 0 to 100
Students are allowed to access Feedback?	<input checked="" type="radio"/> Yes <input type="radio"/> No
Deduction for each accessed Feedback	1 <input type="text"/> (% of part value) Range: 0 to 100
Feedback Style	<input checked="" type="radio"/> Socratic <input type="radio"/> Direct
Students are allowed to access the Correct Answer?	<input checked="" type="radio"/> Yes <input type="radio"/> No
Deduction for accessing Correct Answer	100 <input type="text"/> (% of part value) Range: 0 to 100
<input type="button" value="Save Preferences"/>	

The following screen-shot shows how deduction amounts are made available to students during the assignment. The current part, **Part (b)**, is outlined and areas are provided for information related to hints, feedback, submission attempts and the student's grade. In the upper right portion of 'Part (b)' it can be seen that no deductions have been applied and that the potential grade for the part is 100%. Just below that the student can see that he or she has three attempts and that each incorrect attempt will result in a 5% deduction. Below the equation entry palette, messages inform the student about deduction amounts for accessing hints and feedback.

EXPERT
ta

Assignment Status

[Click here for detailed view](#)

Problem	Status
1	Partial
2	
3	
4	
5	

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hw 5 Begin Date: 2/7/2013 12:00:00 AM -- Due Date: 2/14/2013 12:00:00 AM

Problem 1: A block with a mass of $m = 18$ kg rests on a frictionless surface and is subject to two forces acting on it. The first force is directed in the negative x-direction with a magnitude of $F_1 = 8.5$ N. The second has a magnitude of $F_2 = 19.25$ N and acts on the body at an angle $\theta = 8^\circ$ up from the horizontal as shown.

Randomized Variables

$m = 18$ kg
 $F_1 = 8.5$ N
 $F_2 = 19.25$ N
 $\theta = 8^\circ$

Part (a) Please select the correct FBD from the choices below.

Part (b) Write an expression for the component of net force $F_{net,x}$ in the x direction.

$F_{net,x} =$

cos(α)	cos(φ)	cos(θ)	()	7	8	9	HOME
sin(α)	sin(φ)	sin(θ)	√	∕	4	5	6	←
α	β	θ	/	*	1	2	3	←
d	F_1	F_2	+	-	0	.	END	
g	m	t	√	BACKSPACE	DEL	CLEAR		

Hints: 30% deduction per hint. Hints remaining: 3
Feedback: 10% deduction per feedback.

Part (c) Write an expression for the magnitude of the normal force, F_N , acting on the block. Assume that the surface it rests on is rigid.

Part (d) Solve numerically for the block's acceleration in the x-direction, a_x in m/s^2 .

Grade Summary

Deductions 0%

Potential 100%

Submissions

Attempts remaining: 3

(5% per attempt)

[detailed view](#)

The following screen-shot illustrates several aspects of how information is provided to the student (only **Part (b)** of the problem is shown). The student tried an expression which was incorrect and a pop-up balloon near the expression indicates to the student that meaningful feedback is available. At the bottom left it can be seen that the student accessed three hints and has been charged at total of 9%. To the right, the ‘Grade Summary’ indicates that deductions totaling 13% have been applied and the ‘Submissions’ portion shows that two attempts remain (of the original three), and that a 4% deduction has been made for the incorrect attempt that was just made.

Part (b) Write an expression for the component of net force $F_{net,x}$ in the x direction.

$F_{net,x} = F_2 \sin(\theta) + F_1$

Incorrect Answer
 Meaningful feedback is available below but will result in a deduction. Close

cos(ϕ)	cos(θ)	()	7	8	9	HOME		
sin(ϕ)	sin(θ)	\uparrow \downarrow	4	5	6	\leftarrow		
α	β	θ	/	*	1	2	3	\rightarrow
d	F_1	F_2	+	-	0	.	END	
g	m	t	$\sqrt{\quad}$	BACKSPACE	DEL	CLEAR		

Hints: 3 for a 9% deduction

- When summing forces you should reference your Free Body Diagram.
- Note the angle at which F_2 acts.
- What is the sign of the x-component of the first force?

Feedback: 1% deduction per feedback.

Grade Summary

Deductions **14%**

Potential **86%**

Submissions

Attempts remaining: 2

(5% per attempt)

[detailed view](#)

1	5%
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The student may be able to figure out what they have done wrong without accessing feedback. If so they will not incur an additional deduction. The following figure shows an example of where a student did choose to access the feedback and his or her grade has gone down by five additional percent from the previous screen-shot. Notice to the right that a student can view previous submissions by using the mouse-over feature.

Part (b) Write an expression for the component of net force $F_{net,x}$ in the x direction.

$F_{net,x} = F_2 \sin(\theta) + F_1$

cos(α)	cos(ϕ)	cos(θ)	()	7	8	9	HOME	
sin(α)	sin(ϕ)	sin(θ)	\uparrow \downarrow	4	5	6	\leftarrow	
α	β	θ	/	*	1	2	3	\rightarrow
d	F_1	F_2	+	-	0	.	END	
g	m	t	$\sqrt{\quad}$	BACKSPACE	DEL	CLEAR		

Hints: 3 for a 9% deduction

- When summing forces you should reference your Free Body Diagram.
- Note the angle at which F_2 acts.
- What is the sign of the x-component of the first force?

Feedback: 1 for a 1% deduction

- Pay careful attention to the specified angle and think about how that affects components of forces.
- Pay careful attention to the specified coordinate system and think about how that affects the direction of forces.

Grade Summary

Deductions **15%**

Potential **85%**

Submissions

Attempts remaining: 2

(5% per attempt)

[detailed view](#)

1	5%
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As can be seen students are made fully aware of deduction values while taking the assignment. Providing students with information about how they are being graded is crucial. Students are given information about how many points will be deducted for accessing hints, accessing feedback, how many submission attempts are allowed and how many points will be deducted for each incorrect submission. This information is made clear to the student during the assignment so that he or she can make informed decisions while they are accessing information and submitting answers.

Students are able to revisit assignments and modify answers up to the final due date and time specified by the instructor. Once the assignment due date has passed both students and the instructor are provided with the assignment grade information and are also able to access the detailed grade reports that contain information about everything done during the course of the assignment.

The figure on the following page shows a portion of a grade report (parts a and b only). For ‘Part (a)’ the student chose the correct Free Body Diagram on the first attempt and received full credit. For ‘Part (b)’ the full submission history is available. This summarizes what hints and feedback the student accessed during each stage, the student’s submitted answers, and deduction values for each.

Note the student’s final answer may or may not be exactly correct, which is the case here. If the final answer is not exactly correct, a partial credit grade is appropriate – trig and sign errors are identified here and deductions for these mistakes are made. The ultimate grade for a given part is equal to the grade for the final answer submitted, minus any deductions for accessed hints, accessed feedback, and incorrect submissions. Consider that a student who ultimately gets the answer for a part correct may not get 100% for that part (they may have deductions if it took them several tries and if they had to access information to arrive at that answer).

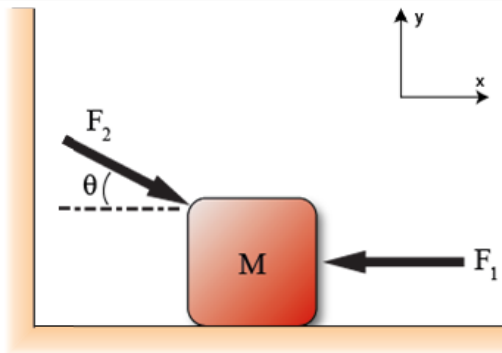
Flexible Grading: In the grade report shown on the following page; if the grade for ‘Part (b)’ seems low, keep in mind that each instructor has full control over his or her grading preferences.

Real Time Monitoring: As the assignment progresses, instructors are not only able to monitor students’ numeric grades but can also view individual grade reports. These reports contain information shown here, including the full submission history for each part as well as what hints/feedback were accessed and when.

Detailed Feedback: In ‘Part (b)’ the expected answer is a symbolic expression. One of the distinguishing characteristics of Expert TA is its ability to grade equations in detail; this allows not only for partial credit, but allows for feedback that is meaningful and specific to mistakes the student has made. Note below that the student’s third and final answer was not ultimately correct – it contained a trig error and a sign error. Specific, and very direct feedback (ex. “... you should have $\cos(\theta)$ instead of $\sin(\theta)$.”) is provided for that final answer. Notice also the feedback shown under the submission history for the student’s first two attempts. This is the feedback that the student would have received while taking the assignment. The feedback is also specific to the mistakes made, but is provided in a Socratic manner.

(See grade report on the following page)

Problem 1: A block with a mass of $m = 18$ kg rests on a frictionless surface and is subject to two forces acting on it. The first force is directed in the negative x-direction with a magnitude of $F_1 = 8.5$ N. The second has a magnitude of $F_2 = 19.25$ N and acts on the body at an angle $\theta = 8^\circ$ up from the horizontal as shown.



Randomized Variables

$m = 18$ kg
 $F_1 = 8.5$ N
 $F_2 = 19.25$ N
 $\theta = 8^\circ$

Part (a) Please select the correct FBD from the choices below.

Correct Answer	Student Answer	Final Grade
		100%
Grade Detail Correct	Student	Feedback
		Final Answer Credit 100%

Submission Detail		Final Answer Credit	100%
Answer	Hints	Feedback	Totals
1	0%	0%	0%
Totals	0%	0%	0%

Part (b) Write an expression for the component of net force $F_{net,x}$ in the x direction.

Correct Answer	Student Answer	Final Grade	
$F_{net,x} = F_2 \cos(\theta) - F_1$	$F_{net,x} = F_2 \sin(\theta) + F_1$	51.5%	
Grade Detail			
Correct	Student	Feedback	
$F_2 \cos(\theta)$	$F_2 \sin(\theta)$	You have a Trig. error. You should have $\cos(\theta)$ instead of $\sin(\theta)$.	12.5%
$-F_1$	F_1	It appears that there may be a sign error associated with at least one term in your expression.	
			Sign Error Penalties 15%
			Final Answer Credit 72.5%

Submission Detail		Final Answer Credit	72.5%
Answer	Hints	Feedback	Totals
1 $F_{net,x} = F_2 \sin(\theta) + F_1 \cos(\theta) + m$	5%	0%	6%
		<ul style="list-style-type: none"> Pay careful attention to trigonometric relationships and how they affect components of the terms in your expression. At least one of your terms contains a trigonometric component that is not necessary. It appears that there may be a sign error associated with at least one term in your expression. <p>Your answer is very close and contains something recognizable for all correct terms. Unfortunately there are additional terms in your equation that are not necessary.</p>	1%
2 $F_{net,x} = F_1 \cos(\theta) - F_2$	5%	9%	15%
	<ul style="list-style-type: none"> -When summing forces you should reference your Free Body Diagram. -Note the angle at which F_2 acts. -What is the sign of the x-component of F_1? 	<ul style="list-style-type: none"> It appears you have confused two variables involved in this expression. 	1%
3 $F_{net,x} = F_2 \sin(\theta) + F_1$	0%	0%	0%
		Note: Feedback not accessed.	0%
Totals	10%	9%	21%