NAME: _____ **DATE:** _____
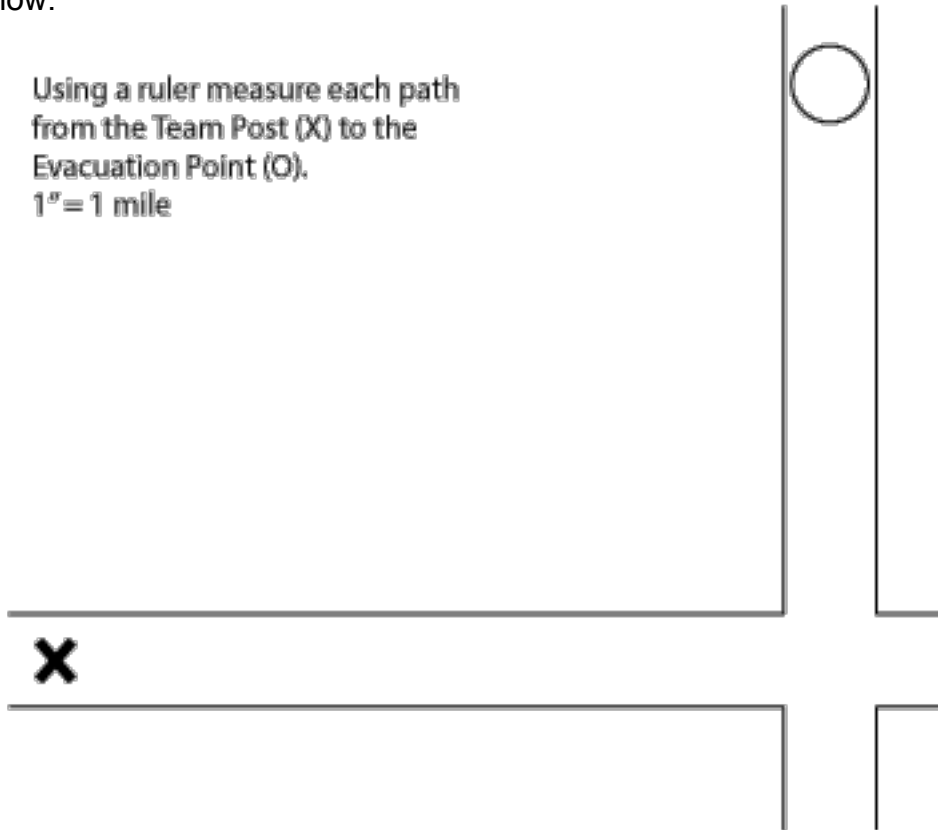
STUDENT #: _____ **TEACHER:** _____

Evacuation Training Investigation Sheet

Part A: Determine the distance from your team's position (X) to the evacuation position (O) on the training map below.

Using a ruler measure each path
from the Team Post (X) to the
Evacuation Point (O).
1" = 1 mile

Path measured	Distance in inches	Distance in miles
Leg 1		
Leg 2		
Team post to the evacuation point		
Total for Path #1 (leg 1 + leg 2) ($D_{path\ 1}$)		
Total for Path #2 ($D_{path\ 2}$)		

Part B: Calculate the length of Path 2 using Pythagorean Therom. Show your computations in the space below.

Path 2
The Hypotenuse

NAME: _____ **DATE:** _____

STUDENT #: _____ **TEACHER:** _____

Pacing Data Collection Sheet

Use this sheet to record the data from the trials for your team.

1. Round One – Walking on the Road

   Walk normal from the start point to the finish point.

Team member name	Distance walked (feet)	Time (seconds)
Total time in seconds		
Average time in seconds		

2. Round Two – Walking through brush

   Walk backwards from the start point to the finish point.

Team member name	Distance walked (feet)	Time (seconds)
Total time in seconds		
Average time in seconds		

NAME: _____ **DATE:** _____

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Pacing Analysis Student Sheet

Using the formula for motion, d (distance) = r (rate) * t (time), and the information from *Pacing Data Collection Sheet* to find your team's rate when walking on road.

d (distance walked)	=	r (rate)	*	t (average time to walk)
	=	R_{road}	*	
	=	R_{brush}	*	

Show how you solve for rate below. Then, place your teams walking rate in the box provided.

Solve for R_{road}	R_{road}	Solve for R_{brush}	R_{brush}

Now that you have the team's rates we need to find the time to walk the paths we found in section 1.3.

Use the formula for motion, d (distance) = r (rate) * t (time), to find the time it would take for your team to arrive at the evacuation point. Remember the units for $D_{path\ 1}$ & $D_{path\ 2}$ were in miles and our rate uses feet. Covert miles into feet (1 mile = 5280 feet).

	d (distance walked)	=	r (rate)	*	t (time to walk)
Path 1		=		*	
Path 2		=		*	

Show how you solve for time below. Then, place your teams time in the box provided. Round to the nearest second. Then, convert the time to minutes (1 minute = 60 seconds).

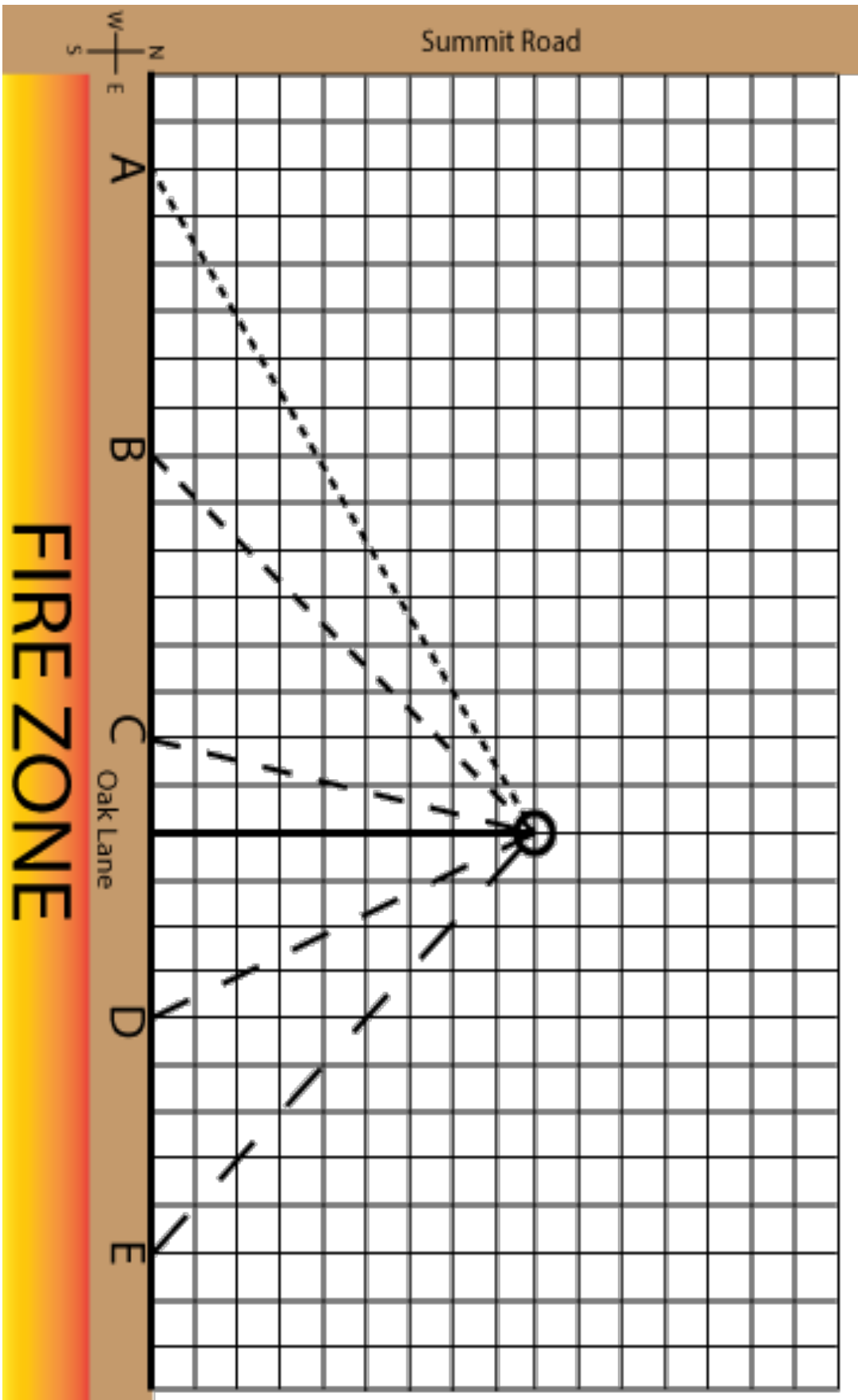| Solve for t using Path 1	time in min	Solve for t using Path 2	time in min

FIRE ZONE

Summit Road

Oak Lane

Evacuation Route Map

NAME: _____

STUDENT #: _____

DATE: _____

TEACHER: _____

A

B

C

D

E

N W E S

NAME: DATE:

STUDENT #:   TEACHER:

Evacuation Route Data Sheet

Find Trail Distances

Find the distance from each trailhead to the evacuation point using the Pythagorean Thereom. You will use the dark wide lines along Oak Lane and the vertical line to the evacuation point as the legs of your triangle. Each trail will then be the hypontenuse. Calculate the hypontenuse by counting the grid marks for each leg, then use the Pythagorean Thereom. Finally convert the distance of the hypotenuse by converting grid marks to feet. Each grid mark represents 500 ft. When complete, transfer the trail distances to your *Evacuation Route Map*.

Trail	Distance along road trail head to vertical (Leg 1)	Vertical from road to evacuation point (Leg 2)	Trail Distance in Feet (Hypotenuse)
A			
B			
C			
D			
E			

Trail Terrain Rate

Using the information in the chart below, find your Hotshot team's rate along the trails with the indicated Terrain Rate Factor. Use your teams R_{road} from section 2.2 on your *Pacing Analysis Student Sheet*.

Trail	R_{road}	X	Terrain Rate Factor	Trail Rate	
A		X	3/4	$R_A =$	
B		X	2/3	$R_B =$	
C		X	1/4	$R_C =$	
D		X	1/3	$R_D =$	
E		X	1/2	$R_E =$	

NAME: _____ **DATE:** _____

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Emergency Evacutation Route Planning Sheet

Using the distances along each route, your team's R_{road}, and the computed Trail Rates (R_A, R_B…), find the time it will take for your team to arrive at the evacuation point using all five trailhead routes. Each line should contain a different segment of the route. Follow the example labeled "EX."

Team Name: _____

Route	Segment Description	Distance	Rate	Time in Seconds (round to nearest second)	Time in Minutes (round to nearest minute)
EX	(0,500) to B	3500 ft	4.24 ft/s	825 sec	14 min
EX	B to Evac Pt	8000 ft	2.8 ft/s	2,857 sec	44 min
EX	Total	11,500 ft		3,682 sec	58 min

NAME: _____ **DATE:** _____

STUDENT #: _____ **TEACHER:** _____

Arrival Timing Data Sheet

Fill in the bar graph with each team's name and total time to arrive at the evacuation point. You will use this information to determine what time the helicopter should arrive when the evacuation call is made.
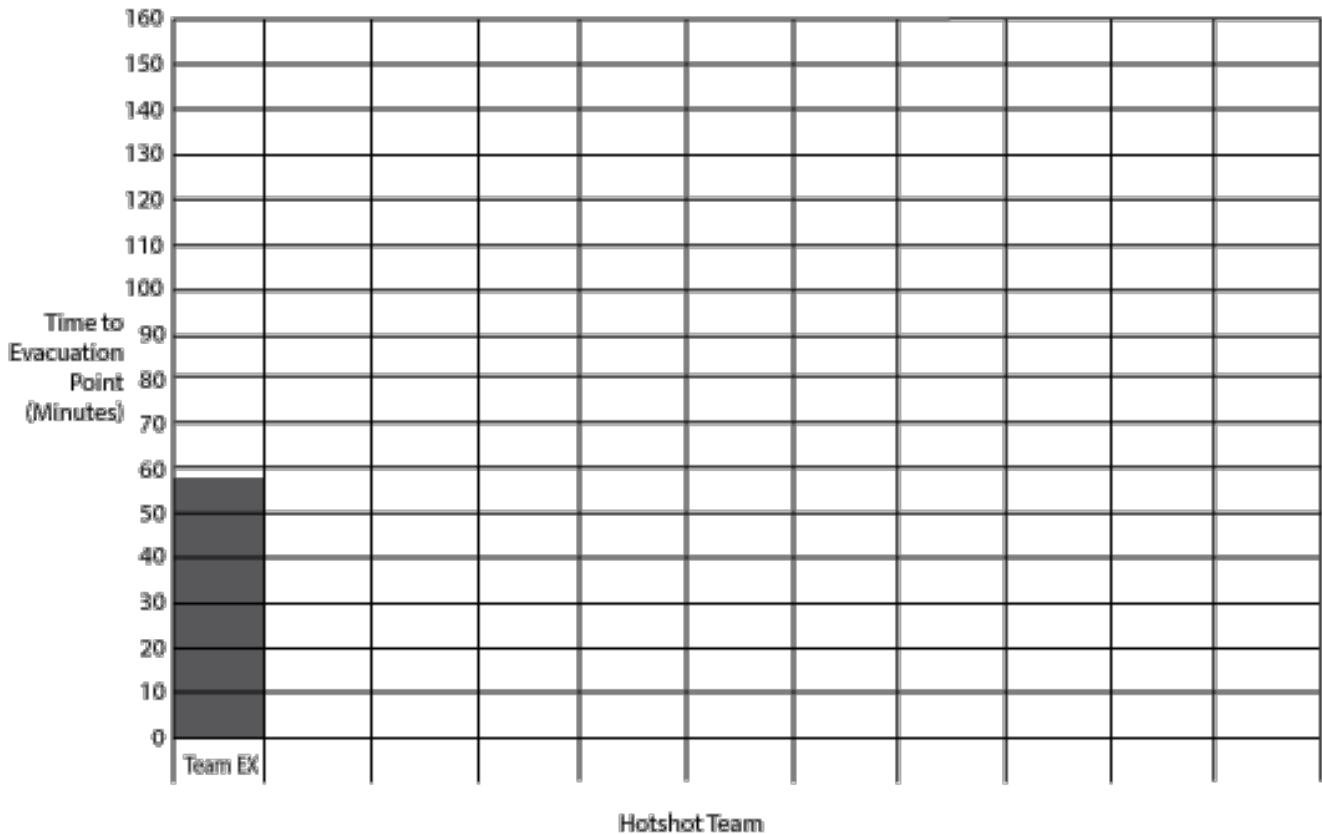
Based on the above graphed data, indicate the time the helicopter should arrive to guarantee that all teams arrive and the helicopter does not leave any team behind.

Time Evacuation Order Given	Evacuation Time