5.2 Recap

10/9

Probability of Rain (%)	0	20	40	60	80	100
Get Reel Attendance	300	340	380	420	460	500

An additional 2 people will attend for every 1% ↑ in prob of rain

300 people will attend if there is 0% chance of rain

$$A_R = 2p + 300$$

Attendance for "p" probability of rain.

probability of rain

What do the parts of the equation tell us about the attendance at Big Fun?

Probability of Rain (%)	0	20	40	60	80	100
Big Fun Attendance	1,000	850	700	550	400	250

$\frac{\Delta y}{\Delta x} = \frac{\text{Attendance}}{\text{prob. of rain}}$

probability of rain

When probability of rain = 0, there will be 1000 people.

$$A_F = -7.5p + 1000$$

Attendance at Big Fun for "p" probability of rain.

with each 1% increase in the probability of rain 7.5 fewer people will attend.

2.5 Recap - We have lots of questions to answer.

B Use your functions from Question A to answer these questions. Show your calculations and explain your reasoning.

1. Suppose there is a 50% probability of rain this Saturday. What is the expected attendance at each attraction?
2. Suppose 475 people visited Big Fun one Saturday. Estimate the probability of rain on that day.
3. What probability of rain gives a predicted Saturday attendance of at least 360 people at Get Reel?
4. Is there a probability of rain for which the predicted attendance is the same at both attractions?
5. For what probability of rain is attendance at Big Fun likely to be greater than at Get Reel?
6. For what probability of rain is attendance at Big Fun likely to be less than at Get Reel?

Our equations can be used to answer each of these questions! That's why we make them!

1. Suppose there is a 50% probability of rain this Saturday. What is the expected attendance at each attraction?

$A_F = -7.5p + 1000$

$A_F = -7.5(50) + 1000$

$A_F = -375 + 1000$

$A_F = 625$

625 people will attend Big Fun if prob. of rain = 50%

$A_R = 2p + 300$

$A_R = 2(50) + 300$

$A_R = 100 + 300$

$= 400$

400 people will attend Get Reel if 50% prob. of rain

2. Suppose 475 people visited Big Fun one Saturday. Estimate the probability of rain on that day.

$A_F = -7.5p + 1000$

$475 = -7.5p + 1000$

$-1000 \quad -1000$

$-525 = -7.5p$

$\frac{-525}{-7.5} = \frac{-7.5p}{-7.5}$

$70 = p$

If 475 people attended, the prob. of rain was ~ 70%

3. What probability of rain gives a predicted Saturday attendance of at least 360 people at Get Reel?

$A_R = 2p + 300$

$360 = 2p + 300$

$-300 \quad -300$

$60 = 2p$

$\frac{60}{2} = \frac{2p}{2}$

$30 = p$

30% prob. of rain if 360 people attend

4. Is there a probability of rain for which the predicted attendance is the same at both attractions?

these are equal

$A_F = -7.5p + 1000$ $\qquad$ $A_R = 2p + 300$

$$-7.5p + 1000 = 2p + 300$$
$$-300 \qquad\qquad -300$$
$$-7.5p + 700 = 2p$$
$$+7.5p \qquad\qquad +7.5p$$
$$700 = 9.5p$$
$$\frac{700}{9.5} = \frac{9.5p}{9.5}$$
$$73.7 = p$$

When prob of rain = 73.7% we can expect the same # of people at each place.

5. For what probability of rain is attendance at Big Fun likely to be greater than at Get Reel?

$p < 73.7\%$

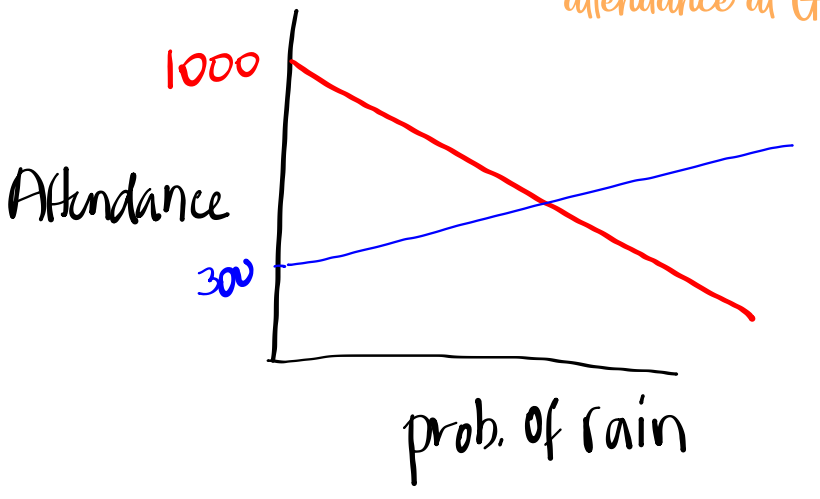
6. For what probability of rain is attendance at Big Fun likely to be less than at Get Reel?

$p > 73.7\%$

What makes you think there is no time when the attendances will be equal at the two places?

Probability of Rain (%)	0	20	40	60	80	100
Big Fun Attendance	1,000	850	700	550	400	250
Get Reel Attendance	300	340	380	420	460	500

Between here we switch from greater attendance at Big Fun to greater attendance at Get Reel!



4. Is there a probability of rain for which the predicted attendance is the same at both attractions?

$A_F = -7.5p + 1000$ $A_R = 2p + 300$

If $A_F = A_R$ then $-7.5p+1000$ must $= 2p+300$

$$-7.5p + 1000 = 2p + 300$$
$$-300 \qquad -300$$

$$-7.5p + 700 = 2p$$
$$+7.5p \qquad +7.5p$$

$$\frac{700}{9.5} = \frac{9.5p}{9.5}$$

$$76.7 = p$$

When the probability of rain = 76.7% there would be equal attendance at Big Fun and Get Reel.

5. For what probability of rain is attendance at Big Fun likely to be greater than at Get Reel?

$p > 76.7$

6. For what probability of rain is attendance at Big Fun likely to be less than at Get Reel?

$p < 76.7$

Classwork

Pages 1 and 2 - left hand column

Page 3 top half

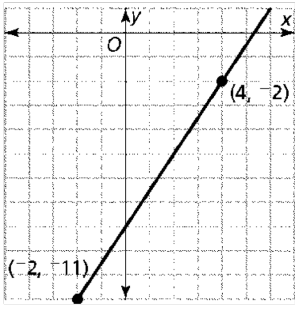
Classwork

Complete left column on pages 1 and 2,
and top half of page 3.

Algebra 8 TWMM Review

Write the equation for the lines shown in the graphs below.

A



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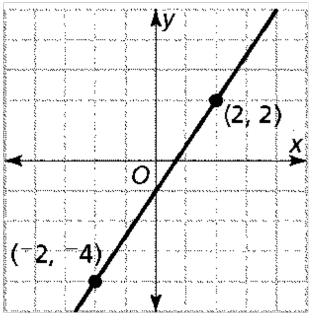
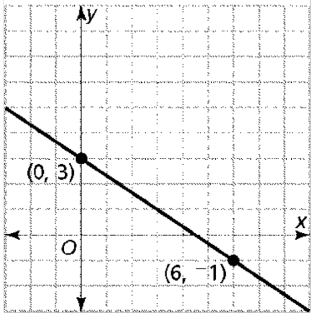
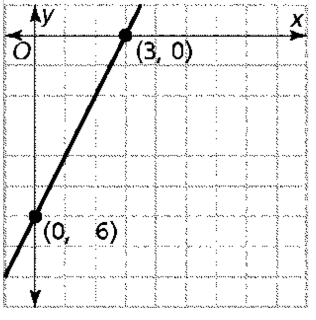


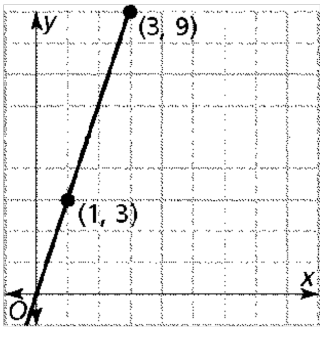
C



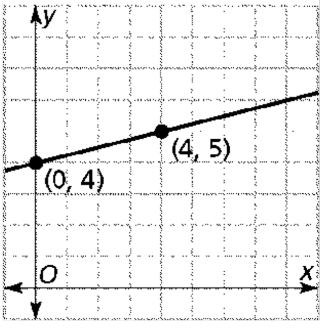
D



E



F



Algebra 8 TWMM Review

Determine whether the relationship between x and y is linear or not. If it is linear, write the equation. If it is not linear, explain how you know.

G

x	2	4	6	8
y	21	16	12	7

H

x	1	2	4	6
y	15	19	27	35

I

x	1	2	3	4
y	16	24	32	40

J

x	5	-5	-13	-21
y	-2	3	7	11

K

x	3	6	9	15
y	2	3	4	6

L

x	1	2	3	4
y	2	4	8	16

M

x	2	3	4	5
y	15	17	19	21

N

x	2	4	6	8
y	17	29	41	53

O

x	-4	-2	2	4
y	6	10	18	22

P

x	3	6	9	15
y	8	7	6	5

Q

x	7	25	30	37
y	-2	-2	-2	-2

R

x	1	3	5	7
y	10	7	4	1

Algebra 8 TWMM Review

Write the equation of the line given the following conditions:

S passes through the points (2, 7) and (6, 15)	**T** with slope −2 that passes through the point (3, −9)
U passes through the points (2, −9) and (−2, 3)	**V** with slope $\frac{3}{2}$ that passes through the point (−2, 0)
W passes through the points (4, 1) and (-2, 4)	**X** with slope $\frac{2}{3}$ that passes through the point (6, 2)
Y passes through the points (2, 1) and (6, 9)	**Z** with slope -4 that passes through the point (−7, 5)
a with slope = $\frac{1}{2}$ that passes through the point (-10, 7)	**b** passes through the points (2, -11) and (-5, 10)
c passes through the points (8, 2) and (-2, 7)	**d** passes through the points (-2, 2) and (3, -2)

Homework

Finish Review Packet