Math in Action Lessons

Expressions, Equations, and Inequalities

Math IN Action

SMP 1 Make sense of problems and persevere in solving them.

Study an Example Problem and Solution

➤ **Read this problem involving linear expressions and rational numbers. Then look at one student's solution to this problem on the following pages.**

Booking a Show

Jorge and Liam play in a band called J Plus L. The band needs to decide on a venue for their next show. Read this email from their agent about the band's options, and help them respond to their agent.

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To: Jorge, Liam
Subject: Show for August 4th

Hey guys,

Here are the options for where we can book your next show. I think you would sell between 200 and 300 tickets at any of these venues.

CONCERT Live Music	Venue	Ticket Price	Share of Ticket Sales	Section AA
	Moonmint Music Hall	$22	20%	Row 3
	Legacy Park	$24	40%	
	Galaxy Theater	$28	30%	Seat 17

Remember that each venue takes a percent of the ticket sales, my fee is $\frac{1}{10}$ of the ticket sales, and $\frac{3}{20}$ of the ticket sales go to your manager. You keep the rest.

WHAT I NEED FROM THE BAND:

- Pick a venue.
- Write an expression that shows how much the band will make from the sale of t tickets. The expression should make it easy for me to see the price for a ticket and the amount that the venue, your manager, and I will make for every ticket sold.
- Write an equivalent expression that makes it easy for me to see how much the band will make for every ticket sold.
- Estimate how much the band will make in ticket sales from the show.

Thanks!

Negative Numbers, Inequalities, and the Coordinate Plane

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Study an Example Problem and Solution

➤ **Read this problem involving negative numbers and the coordinate plane. Then look at one student's solution to this problem on the following pages.**

Mapping Maya Ruins

Teams of archeologists are studying the Maya ruins in several locations in Central America. Agustin is one of the archeologists. Read the notes he takes about the structures his team is examining.

Choose one of the structures Agustin has not already mapped, and draw its base using his coordinate system. What is the area of the structure's base? How does it compare to the area of the base of Structure 1?
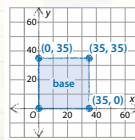
The s... depen... shape... the st... of the...

FIELD NOTES

JUNE 10

Structure 1 is a pyramid. The map at the right shows the base of Structure 1. One unit on the map represents 1 meter.

(0, 35) (35, 35) base (35, 0)

We also surveyed three other structures today. Here are the map coordinates of the vertices of their bases.

- **Structure 13:**
  (−85, 30), (−70, 30), (−70, −15), (−100, −15), (−100, 0), (−85, 0)

- **Structure 14:**
  (−90, −40), (−55, −40), (−55, −60), (−70, −60), (−70, −50), (−90, −50)

- **Structure 15:**
  (−60, −80), (−50, −80), (−50, −155), (−70, −155), (−70, −95), (−60, −95)

Many Maya pyramids are stepped pyramids. Stepped pyramids are formed from a series of flat platforms, or steps.

Area, Surface Area, and Algebraic Expressions

Math IN Action

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Study an Example Problem and Solution

➤ **Read this problem involving surface area and common factors. Then look at one student's solution to this problem on the following pages.**

Buying Hens

Juan's agriculture class will be raising hens. The school already has coops for the hens, but the class will need to build pens so that the hens have a place to roam around in the fresh air. Read the requirements from Juan's teacher, and help him respond to the email.

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To: Juan
Subject: Building Pens for Hens

Hi Juan,

You will be in charge of purchasing new hens and building pens for all the hens.

...ght now, we have 12 hens (4 leghorns and 8 orpingtons).
...will raise a total of 20–25 hens.
...prices for different quantities of each type of hen.

...HORN HENS		ORPINGTON HENS	
...ns	Price (Each)	Quantity	Price (Each)
s	$4.00	1–5 Hens	$4.75
s	$3.75	6–15 Hens	$4.25

...u can build at most 8 pens. Each pen will contain only one type of hen. ...will be the same size and hold the same number of hens. Each pen should ...st 4 feet high, and there should be at least 8 square feet of floor space per ...icken wire will cover the top and sides of each pen.

...PROVIDE:
...mber of and type(s) of hens you plan to buy.
...mber of pens you plan to build.
...ount of chicken wire you will need to build all the pens.

...ary

Chickens can remember over 100 different faces of animals or people.