

New Britain United Boys U16 Math and English Test

The purpose of this test is to determine the following.

- 1) Your ability to solve problems; (problem solving is a key element to the game of soccer).
- 2) Your analytical ability to determine gaps as we prepare for college.
- 3) This is a very difficult and comprehensive exam it is not expected that you will be able to solve every question. Solve the problems that you can.
- 4) It is ok to work in groups or get help from parents, teaches etc please state on the exam who you worked with to get the solutions.
- 5) It is ok to use reference books to solve the exam.
- 6) Exam is due May 3rd
- 7) If it is determined that a decent effort to solve the exam was not put forward you will face suspension from games etc.

English

Write an Essay on what the game of soccer means to you. (You get bonus points if it is typed)

Math.

Solve the following

1) $3 + 5 \times 2$

2) $7 \times 5 - 2 + 4 \times 6$

3) $17 - 2 \times (5 - 3)$

1) The operation $*$ means divide the first number by 2 and add the second number.

Solve the following.

a) $2 * 4$.

b) $10 * 2$.

5) $\frac{1}{2} + \frac{1}{3}$

b) $7\frac{3}{8} + 2\frac{3}{4} + \frac{7}{8} + \frac{5}{16}$

$$7) \frac{2}{3} \times \frac{4}{5}$$

$$8) \frac{4}{5} \div 2\frac{1}{2}$$

$$9) 5 \div 5\frac{1}{5}$$

10) A train travels 300 km in 4 hours. What is its average speed?

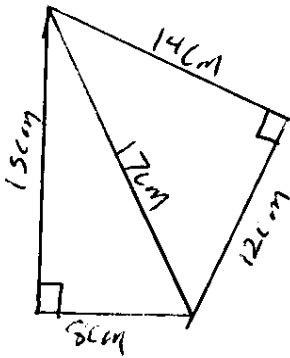
$$1) 7 \times (-6)$$

$$2) (-3)^2$$

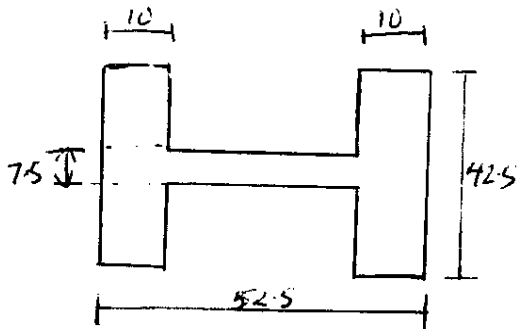
$$3) 7x + 11x$$

$$4) 14xy + 5xy - 7xy + 2xy$$

21) Find the area of the shape shown in Fig 21.6.

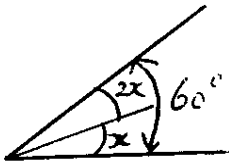


22)



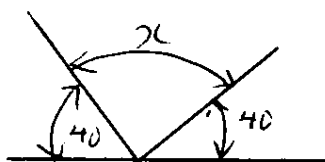
Calculate Area of this shape

23)



Find x .

24)



Find x .

$$15) 3(x+4)$$

$$16) -(4a + 5b - 3c) - 2(2a + 3b - 4c)$$

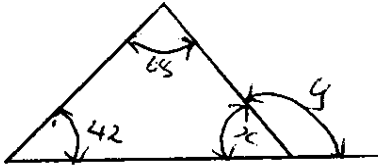
$$17) 9p^2 - 25 = (3p+5)(\quad)$$

$$18) C = \pi d$$
$$d =$$

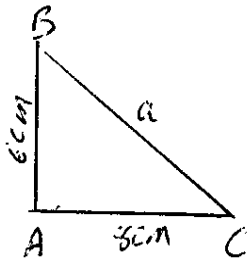
$$19) C = \frac{E}{R-r}$$
$$r =$$

$$20) x = \frac{dh}{D-d}$$
$$d =$$

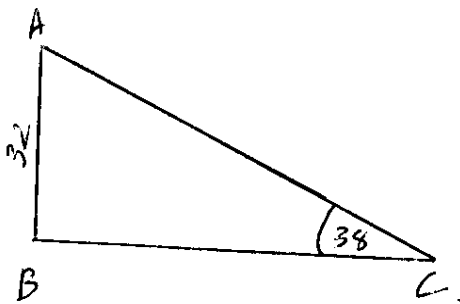
25)

Find x & y .

26)



27)

Find AC and BC .

Manchester United Transfer Fee Problem

Sir Alex Ferguson has stated that unless he gets \$ 25,000,000 Euros in transfer money to spend in summer 2009 he will leave the club. The transfer money comes from 2 sources. 50% comes from American owner Malcolm Glazer and 50% comes from corporate sponsor AIG (American International Group).

During fiscal planning at the beginning of 2009 Malcolm Glazer had set aside 20 million US dollars for Manchester United transfer fees. He decided to invest this money in GE stock until he is ready to use it in the summer. At that time he purchased the GE stocks at \$20 USD per share.

- 1) How many shares did Malcolm Glazer purchase?
- 2) Based on the current share price how much money does Malcolm Glazer have available for transfer fees in Euros?

Note: 1 USD = 0.75 Euro.

To get current share price for GE go to www.cnbc.com and use symbol "GE" share price is in USD (United States dollars).

During fiscal planning for 2009 AIG has set aside 15 million USD from its NYC office to provide to Manchester United. AIG is required to pay taxes on all money provided for sponsorship which reduces the overall money sponsored by the taxable amount. (For example if AIG sponsors \$10 and the taxes equal \$2 the amount of money actually received by the club will be equal to \$8)

AIG is an international company and has offices in New York, London and St John's Antigua in the Caribbean. And can chose to sponsor the money from any location.

The current tax rates for these 3 locations are.

United States 15 % no fees
United Kingdom 23% no fees
Antigua 0 % \$100,000 flat fee

Historically AIG has transferred the money from its New York City Office.

- 3) For each of the three locations above how much tax would AIG have to pay to transfer the money to Manchester United?
- 4) What would be the AIG sponsorship amount in Euros that Manchester United would receive if the money was transferred from each of the locations above?
- 5) In your opinion which location should AIG transfer the money from, explain why?
- 6) What impact does your decision have on the US economy?

Because of the negative impact of the financial bailout & bonuses with regard to AIG. The Obama administration and Congress has decided to increase taxes on all AIG sponsorship deals from 15% to 50%.

7) Based on this new tax rate if AIG were to continue to transfer the money from its New York City offices. How much money would Manchester United receive from AIG?

8) Assume you are an executive in AIG responsible for providing the sponsorship money to clubs. Draft a memo to President Obama explaining the impact of the increased tax rate on your operations as well as the impact to the clubs you sponsor. Attach the memo on a separate sheet of paper.

Based on Manchester United's two sources of Money.

- Money provided by Owner Malcolm Glazer
- Money provided by AIG.

8) How much money will Manchester United have available for Transfer fees in summer 2009?

9) Will Sir Alex Ferguson remain at the Club? Explain your answer.

10) If not, make some suggestions on how to fix this problem.

MLS Contract Problem

You have been offered a contract in MLS and you can choose between two clubs. LA Galaxy and Columbus Crew. LA Galaxy did not make the playoffs last year, Columbus won the MLS cup.

The Salaries offered are

LA Galaxy \$93,000 / season
Columbus \$53,000 / season

Through the 8 month season you get 8 equal paycheck with no paycheck during the off season.

You are responsible for Agent fees as follows from your 8 paychecks (Automatic Payment.)

Paycheck 1 & 2 - 15%

Paycheck 3 & 4 - 7%

Paycheck 4 to 8 - 3%

In addition the following is taken directly out of your paycheck

Federal Taxes – 10%

State Taxes California - 3%

State Taxes Ohio – 5%

Federal Social Security Tax – 1%

Federal Medicare Tax – 2%

Player Union Fees - \$300 per Paycheck.

Agent Fees are taken out on an after tax basis but before union fees are paid.

Given the following facts on cost of living.

Cost of apartment in California - \$3000 / month

Cost to lease a BMW X5 in California - \$900 / month

Cost to lease a Honda Civic in California - \$300 / month

Cost of apartment in Ohio - \$500 / month

Cost to lease a BMW X5 in Ohio - \$500 / month

Cost to lease a Honda Civic in Ohio - \$169 / month

- 1) Which contract will you take? And which car will you drive and Why?
- 2) What will your paychecks be for each month, 1 through 8.
- 3) How much money do you have to have saved up to cover your rent and car payment for the remaining 4 months of the year in the off season when you receive no paycheck?
- 4) Based on your salary is this number attainable? Explain.

Penalty Kick Champions League

Based on Statistics Bufon has a 30% chance of saving a penalty if it is kicked to his left and a 55% chance of saving a penalty that is kicked to his right.

Van Der Sar has a 25% chance of saving a penalty if it is kicked to his left and a 60% chance of saving a penalty that is kicked to his right.

We are in sudden death in the Penalty Shootout of the UEFA Champions League. Schols is kicking for Manchester United he kicks the ball to the Bufon's left and has a penalty kick record of 25 goals in 47 attempts.

Nedved is kicking for Juventus he kicks to Van Der Sar's left he has a penalty kick record of 60 goals in 65 attempts.

Who has the better chance of winning the Champions League Juventus or Manchester.

Hints

Chance of a goal = $1 - \text{chance of a save}$ and vice versa

Chance of event A and event B happening = $\text{chance of event A} * \text{chance of event B}$ (If A and B are independent).

FSA U 16 Game

In an indoor soccer game at FSA U16 defenders on average touch the ball for 2 seconds at a time. Midfielders on average touch the ball for 5 seconds at a time and forwards touch the ball for 4 seconds at a time.

For 1 half of the game

Assume 4 minutes of the time was wasted for the ball being out of play, if FSA possessed the ball for 55% of the time.

How much time in minutes did New Britain United possess the ball?

If all players had equal touches on the New Britain United team how many total touches did each player get. (Assume 2-2-1 formation)