8th grade math final

Name Key
Mrs. Roumbos

Date_____
8R Period_____

Classwork Day 7

1) Mr. Smith is buying two types of gift cards to give as prizes to employees at a company meeting. He will buy restaurant gift cards that each cost $100. He will also buy movie theater gift cards that each cost $40. He has $500 to buy a total of 8 gift cards. How many of each type of gift cards can Mr. Smith buy?

1) He can buy 6 restaurant gift cards and 2 movie theater gift cards.

$$\begin{array}{r} 100 \\ \times 6 \\ \hline 600 \end{array} \qquad \begin{array}{r} 40 \\ \times 2 \\ \hline 80 \end{array} \qquad \begin{array}{r} 600 \\ +80 \\ \hline 680 \end{array} \times$$

2) He can buy 3 restaurant gift cards and 5 movie theater gift cards.

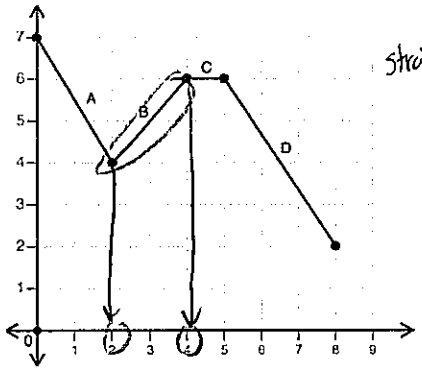
$$\begin{array}{r} 100 \\ \times 3 \\ \hline 300 \end{array} \qquad \begin{array}{r} 40 \\ \times 5 \\ \hline 200 \end{array} \qquad \begin{array}{r} 300 \\ +200 \\ \hline 500 \end{array} \checkmark$$

3) He can buy 4 restaurant gift cards and 4 movie theater gift cards.

4) He can buy 7 restaurant gift cards and 1 movie theater gift cards.

Steps: Multiply the amount of cards by the matching prices and then add the values together. Guess & check until you get the correct amount

2) In which x-interval is the graph below linear and increasing?



straight line

positive slope

Between x=2 and x=4

**Steps: look for the x-values where the graph is a straight line and has a positive slope.

3. Between which two integers does $\sqrt{82}$ lie on the number line?

$\sqrt{82} = 9.055385138...$ Between 9 and 10

2nd | x^2 | 82 | =

** Steps: Put in your calc (2nd)(x^2)

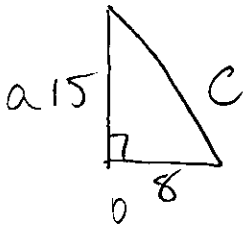
4. Does the following set of ordered pairs represent a function?

$\{(4,6),(5,7),(4,8),(3,2)\}$

Not a function B/c the x-value of 4 repeats

** Rule: Function: the x-values do not repeat

5. The legs of a right triangle are 15 meters and 8 meters. Find the length of the hypotenuse.

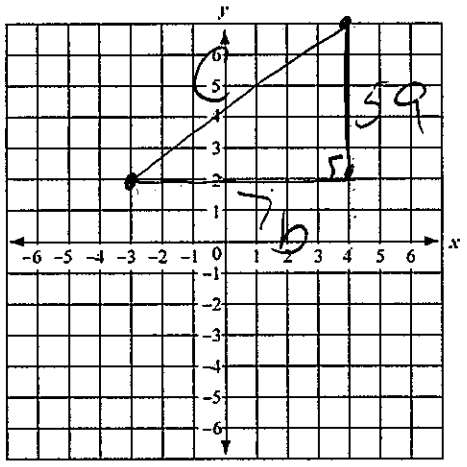


$a^2+b^2=c^2$
$15^2+8^2=c^2$
$225+64=c^2$
$\sqrt{289}=\sqrt{c^2}$
$c=17$

17m

** Steps: Use the pythagorean theorem ($a^2+b^2=c^2$) + solve for the hypotenuse. The hypotenuse must be labeled C.

6. Which of the following best represents the distance between (−3,2) and (4, 7) on the coordinate plane? Round to the nearest tenth.


y
x
5
7
c
5
7
$a^2+b^2=c^2$
$5^2+7^2=c^2$
$25+49=c^2$
$\sqrt{74}=\sqrt{c^2}$
$c=8.60$

** Steps: plot the points + then create a right triangle. Use $a^2+b^2=c^2$ to solve for the hypotenuse (c)

7. Which of the following is a rational number?

1) π
2) $\frac{3}{7}$ fraction
3) $\sqrt{15}$
4) 5.69823...

* Fractions are always rational

** Def: Rational: Whole #'s and integers, fractions, repeating or terminating decimals + $\sqrt{}$ perfect squares

8. Which of the following is an irrational number?

1) $\sqrt{25}$
2) $\sqrt{80}$
3) $.\overline{13}$
4) -7

Def: **Steps: NON-terminating and NON-repeating decimals ↑↑ #'s that can't be written as fractions, √ NON-perfect squares

Now you try!

10. Mr. Smith is buying two types of gift cards to give as prizes to employees at a company meeting. He will buy restaurant gift cards that each cost $75. He will also buy movie theater gift cards that each cost $25. He has $550 to buy a total of 12 gift cards. How many of each type of gift cards can Mr. Smith buy?

75 25

1) He can buy 5 restaurant gift cards and 7 movie theater gift cards.

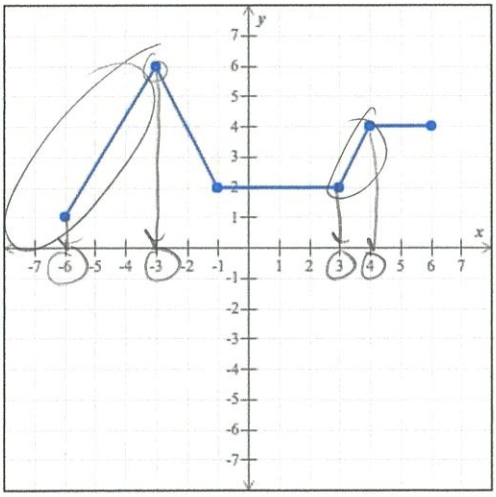
2) He can buy 8 restaurant gift cards and 4 movie theater gift cards.

3) He can buy 3 restaurant gift cards and 9 movie theater gift cards.

4) He can buy 6 restaurant gift cards and 6 movie theater gift cards.

$$\begin{array}{lll} 75 & 25 & 375 \\ \times 5 & \times 7 & -175 \\ \hline 375 & 175 & 550 \end{array}$$

11. In which x-interval is the graph below linear and increasing?



Straight line

positive slope

Between $x=-6$ & $x=-3$

and

Between $x=3$ & $x=4$

12. Between which two whole number does $\sqrt{40}$ lie on the number line?

$\sqrt{40} = 6.32455532\ldots$

Between 6 & 7

13. Which of the following set of ordered pairs is a function? Why?

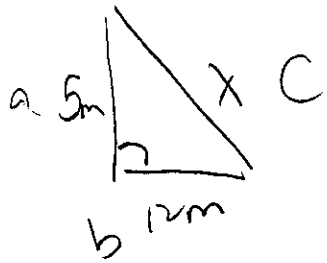
a. {(1, -4), (-2, -5), (5, 5), (-2, 6)}

b. {(5, 2), (3, 2), (-1, 2), (-1, 4)}

c. {(-6, -1), (-3, -4), (0, -4), (-5, -4)}

B/c the x-values don't repeat

14. The legs of a right triangle are 5 meters and 12 meters . Find the length of the hypotenuse.



$a^2 + b^2 = c^2$

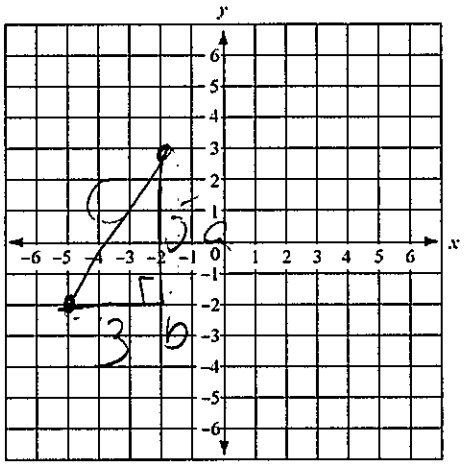
$5^2 + 12^2 = c^2$

$25 + 144 = c^2$

$\sqrt{169} = \sqrt{c^2}$

$c = 13$

15. Which of the following best represents the distance between $(-5, -2)$ and $(-2, 3)$ on the coordinate plane? Round to the nearest tenth



$a^2 + b^2 = c^2$

$5^2 + 3^2 = c^2$

$25 + 9 = c^2$

$\sqrt{34} = \sqrt{c^2}$

$c = 5.8$

16. Which of the following is a **rational** number?

1) 1.536872...

2) $\sqrt{8}$

3) $\sqrt{13}$

4) $\frac{5}{9}$ Fraction!

17. Which of the following is irrational?

$\sqrt{7} = 2.645751311\ldots$ $\frac{50}{3}$ 6.5 -3

→ B/c it is a NON-terminating & NON-repeating decimal