MCMS
6th Grade
NTI Packet
Day 23

Greatest Common Factor

Select the correct answer(s) from the given options:

1. What is the greatest common factor of 2 and 8?
a) 2 b) 4
c) 8 d) 16
2. What is the greatest common factor of 16 and 20?
a) 8 b) 4
c) 2 d) 5
3. What is the greatest common factor of 24 and 27?
a) 8 b) 4
c) 3 d) 6
4. What is the greatest common factor of 18 and 24?
a) 3 b) 6
c) 8 d) 4
5. What is the greatest common factor of 14 and 63?
a) 2 b) 7
c) 1 d) 9
6. What is the greatest common factor of 40 and 72?
a) 8 b) 2
c) 6 d) 4
7. What is the greatest common factor of 48 and 84?
a) 8 b) 12
c) 6 d) 10
8. What is the greatest common factor of 45 and 75?
a) 5 b) 10
c) 25 d) 15

Least Common Multiple

Select the correct answer(s) from the given options:

9. What is the least common multiple of 8 and 6?
a) 6 b) 24
c) 12 d) 8
10. What is the least common multiple of 4 and 8?
a) 4 b) 8
c) 6 d) 2
11. What is the least common multiple of 4 and 10?
a) 12 b) 20
c) 10 d) 8
12. What is the least common multiple of 2 and 10?
a) 5 b) 20
c) 2 d) 10
13. What is the least common multiple of 3 and 11?
a) 3 b) 1
c) 11 d) 33
14. What is the least common multiple of 3 and 12?
a) 6 b) 3
c) 4 d) 12
15. What is the least common multiple of 8 and 5?
a) 13 b) 40
c) 8 d) 5
16. What is the least common multiple of 5 and 7?
a) 1 b) 35
c) 12

Select the correct answer(s) from the given options:

1. There are 40 colored pens in a pen holder. 11 pens are red, 15 pens are black, and the remaining pens are blue. Ratio of red pens to black pens is

a) 11:14 b) 11:15

c) 15:11 d) 14:15

2. There are 40 colored pens in a pen holder. 11 pens are red, 15 pens are black, and the remaining pens are blue. What is the ratio of red pens to blue pens?

a) 15:11 b) 11:15

c) 11:14 d) 14:15

3. There are 40 colored pens in a pen holder. 11 pens are red, 15 pens are black, and the remaining pens are blue. What is the ratio of black pens to red pens?

a) 11:14 b) 11:15

c) 15:11 d) 14:15

4. There are 40 colored pens in a pen holder. 11 pens are red, 15 pens are black, and the remaining pens are blue. Ratio of blue pens to red pens is

a) 15:11 b) 14:15

c) 11:14 d) 14:11

5. John has 61 colored marbles. There are 21 blue marbles, 15 black marbles, 17 brown marbles, and the remaining are red marbles. Ratio of red marbles to black marbles is

a) 8:17 b) 9:15

c) 15:11 d) 8:15

6. John has 61 colored marbles. There are 21 blue marbles, 15 black marbles, 17 brown marbles, and the remaining are red marbles. What is the ratio of black marbles to brown marbles?

a) 17:15 b) 8:15

c) 15:17 d) 8:15

7. John has 61 colored marbles. There are 21 blue marbles, 15 black marbles, 17 brown marbles, and the remaining are red marbles. Write the ratio of blue marbles to black marbles.

a) 7:5 b) 5:7

c) 7:15 d) 15:7

8. John has 61 colored marbles. There are 21 blue marbles, 15 black marbles, 17 brown marbles, and the remaining are red marbles. What is the ratio of black marbles to red marbles?

a) 15:17 b) 15:8

c) 17:15 d) 8:15

9. John has 61 colored marbles. There are 21 blue marbles, 15 black marbles, 17 brown marbles, and the remaining are red marbles. Ratio of brown marbles to red marbles is

a) 8:15 b) 17:8

c) 8:17 d) 15:17

10. John has 61 colored marbles. There are 21 blue marbles, 15 black marbles, 17 brown marbles, and the remaining are red marbles. Ratio of black marbles to blue marbles is

a) 7:5 b) 5:7

c) 7:15 d) 5:17

11. John has 61 colored marbles. There are 21 blue marbles, 15 black marbles, 17 brown marbles, and the remaining are red marbles. What is the ratio of brown marbles to blue marbles?

a) 8:21 b) 17:21

c) 21:15 d) 21:17

Answer Sheet

1. 1. 11:15
2. 2. 11:14
3. 3. 15:11
4. 4. 14:11
5. 5. 8:15
6. 6. 15:17
7. 7. 7:5
8. 8. 15:8
9. 9. 17:8

10. 5:7

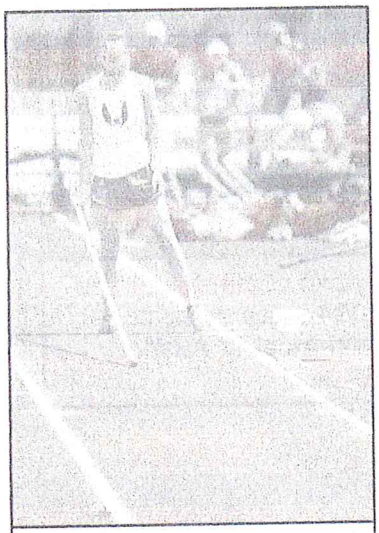
17:21

Read the next two selections. Then choose the best answer to each question.

6th English Day # 23

Soaring to New Heights

1 Texas pole-vaulter Charlotte Brown is reaching new heights. As a sophomore in high school, 15-year-old Brown competed in the pole vault at a state track-and-field meet in Texas in 2013. She finished eighth with a vault of 10 feet 6 inches. What makes this accomplishment even more notable is that Brown is legally blind. Because she could distinguish between light and dark, she and her coach developed a system that enabled Brown to vault competitively. Her coach would roll out some dark artificial turf alongside Brown's running lane. This allowed Brown to be able to run in a straight line. She also had to count her steps in order to know when to plant the pole and listen carefully as her coach told her when to jump.



Brown checks her position as she prepares to vault in a 2013 competition.

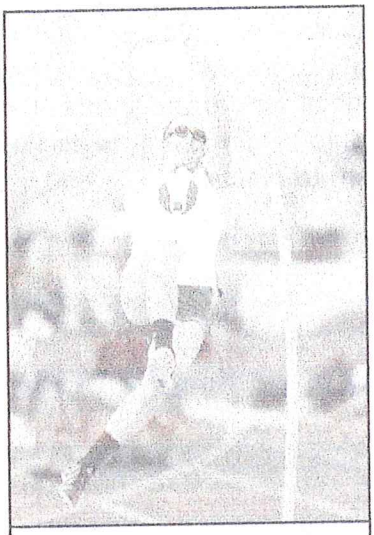
© Eric Gay/Associated Press

2 In 2014, as a junior, Brown found herself in familiar circumstances. She had made it back to the state championships in the pole vault. Over the course of the year, though, Brown's vision had worsened. She could no longer discern the contrast between the dark turf and the runway. This meant that she had to develop new methods that would allow her to continue competing. Her coach now uses a whistle to keep her centered, and Brown uses a beeper that alerts her when to plant her pole.

3 Even though her eyesight has diminished, Brown continues to think positively. "The bright side is, I'm already totally blind. I can't get any blinder. What I figure out now will work the rest of my vaulting career," she said after finishing fourth at the state meet with a jump of 11 feet.

GO ON

4 "I think a disability is something that stops you or limits you from being able to do the things that you want to do," Brown says. "I think everyone struggles with something in life. This was my something." As she thinks about the future, Brown clearly doesn't consider her blindness a disability. She is keeping an open mind about continuing competitive pole vaulting in college. She has even considered competing in the Olympics. She also envisions a career in teaching or coaching. With these goals in mind, Brown will surely continue to soar to new heights.



Brown competes at the 2014 state track-and-field meet in Austin, Texas.

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GO ON

See It Through

by Rachele Honcharik

1 If there is one trait I have taken from my mother, it is her courage. Like most mothers, my mom wants the best for me. She encourages me to seize every opportunity and use it to its fullest potential. She has encouraged me to reach for those opportunities that may even seem impossible. After all, she does this every day.

2 When friends meet my mom for the first time they are often taken aback, and when they get me alone for a second, they scold me for not telling them my mom is in a wheelchair. It shocks them, and initially they don't want this emotion to show on their faces when they shake her hand and say hello.

3 In my defense, I never think to mention that my mom is in a wheelchair. She has been paralyzed from the waist down for most of her life, and all of mine. To me, though, she is just a regular mom. Like many of my friends' moms, she has always been there for me. When there were those moments as a child when I just needed to be held, I knew I could crawl onto my mother's lap and find comfort in her safe arms. When I needed a cheerleader on the sideline of my soccer games, she was always there. Mother, friend, confidante, teacher, nutritionist, chef, caregiver, banker, coach, consultant, and advisor—my mom has always been there for me. And when it was time to move out of the house, she was there helping me pack, hoping that everything I had learned from home would carry over into the next phase of my life. Like I said, just a regular, great mom.

4 On family vacations, my mother never sits out on an activity. Whether it means long arguments with hotel owners to create handicap accessible ramps or strapping herself to some stranger's lap in order to zip-line over the mountains of Costa Rica, we're all right there, helping her be a part of everything. Of course, there are some things that she can't do. She couldn't hike the volcano in Hawaii with the rest of the family or go cliff-jumping in Mexico. But she always tries. She goes as far as she can. No matter how good or bad the chances are of something working out in her favor, she always tries.

5 I have learned from watching my mom that if I don't have the courage to try, even if the chances of failure are great, I will also never succeed. My choices are infinite, and not just because of the opportunities I've had. They are without bounds because my mother showed me how to live outside of limits.

"See It Through" by Rachele Honcharik is excerpted from *Bookmarked: Teen Essays on Life and Literature from Tolkien to Twilight*, edited by Ann Camacho, copyright © 2012. Used with permission of Free Spirit Publishing Inc., Minneapolis, MN; 800-735-7323; www.freespirit.com. All rights reserved.

Use "Soaring to New Heights" (pp. 14–15) to answer questions 14–18. Then fill in the answers on your answer document.

14 Which sentence best expresses the main idea of paragraph 2?

F Brown adapted her technique as her vision worsened.

G Brown believed that being a junior in high school was easy.

H Brown succeeded at pole vaulting despite her disability.

J Brown competed in the Texas state championships twice.

---

15 The photograph and caption below paragraph 1 help the reader understand that —

A Brown requires special tools to compete

B Brown needs to confirm her placement on the track

C Brown is becoming more successful at pole vaulting

D Brown appreciates the support of her coach

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16 Which sentence from the selection best highlights that the author is impressed with Brown?

F *Because she could distinguish between light and dark, she and her coach developed a system that enabled Brown to vault competitively.*

G *She had made it back to the state championships in the pole vault.*

H *She has even considered competing in the Olympics.*

J *With these goals in mind, Brown will surely continue to soar to new heights.*

17 In paragraph 3, what does the word diminished mean?

A Changed constantly

B Been reduced

C Caused defeat

D Produced confusion

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18 The organization of paragraphs 1 and 2 contributes to the author's main idea by —

F comparing Brown with the other athletes she competes against

G explaining how Brown overcame her challenges over time

H highlighting the competitions Brown has participated in

J showing the cause of Brown's disability and its effects on her activities

Use "See It Through" (p. 16) to answer questions 19–24. Then fill in the answers on your answer document.

19 What is one message the author conveys in the selection?

A Plan ahead for difficult times.

B Be honest with those you love.

C Take risks in order to be successful.

D Treat others as you would like to be treated.

---

20 The author admires her mother mostly because her mother —

F offers advice on a variety of topics

G exposes the author to many new experiences

H has been in a wheelchair for the author's entire life

J lives in a way that demonstrates perseverance

---

21 What is the most likely reason the author does not tell her friends that her mother is paralyzed?

A She does not want people to judge her mother because of her disability.

B She prefers to let her mother explain her own situation to others.

C She does not think it is an important characteristic of her mother.

D She thinks that most people already know her mother uses a wheelchair.

22 The author compares her mother with other mothers in order to show that —

F her mother is more supportive than other mothers

G her mother does many of the positive things that other mothers do

H other mothers help the author as much as her own mother does

J other mothers do not understand the difficulties her mother experiences

---

23 Which sentence from the selection best establishes how the author's mother approaches her situation?

A *Like most mothers, my mom wants the best for me.*

B *She has been paralyzed from the waist down for most of her life, and all of mine.*

C *She couldn't hike the volcano in Hawaii with the rest of the family or go cliff-jumping in Mexico.*

D *No matter how good or bad the chances are of something working out in her favor, she always tries.*

---

24 Paragraph 4 shows that the author's family —

F comforts the mother when she is unable to participate

G supports the mother in her efforts to enjoy life to the fullest

H wants to prevent the mother from taking unnecessary risks

J thinks the mother should try activities designed specifically for people in wheelchairs

Use "Soaring to New Heights" and "See It Through" to answer questions 25–28. Then fill in the answers on your answer document.

25 The authors of the two selections most likely think their subject is someone who exhibits —

A bravery

B humor

C sympathy

D forgiveness

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26 Read this sentence from "Soaring to New Heights."

> *Her coach now uses a whistle to keep her centered, and Brown uses a beeper that alerts her when to plant her pole.*

Which phrase from "See It Through" illustrates that the mother also accomplishes tasks in a creative way?

F *mention that my mom is in a wheelchair*

G *a cheerleader on the sideline of my soccer games*

H *strapping herself to some stranger's lap in order to zip-line*

J *mother showed me how to live outside of limits*

27 One **difference** between "Soaring to New Heights" and "See It Through" is that only "See It Through" —

A shows how problems caused by a physical challenge become less important over time

B illustrates how certain activities can enhance the quality of a person's life

C tells of the athletic accomplishments of a person who has limited mobility

D describes a personal experience of living with someone who is disabled

---

28 What does Charlotte Brown in "Soaring to New Heights" have in common with the author's mother in "See It Through"?

F They both want people to ignore the fact that they sometimes need assistance.

G They both believe that their situation will improve someday.

H They both are unwilling to use special accommodations.

J They both refuse to let their circumstances limit their goals.

Mayan Astronomy

This text is adapted from an original work of the Core Knowledge Foundation.



Some priests were expert astronomers and charted the sky. They consulted the heavens to determine favorable days for planting and harvesting.

The Maya believed that their gods gave them an unclear view of the world that was "like breath on a mirror." But we also know that the Maya understood some things very well. Their knowledge of astronomy, for example, was impressive. The Maya, of course, did not have telescopes, computers, or satellites. They didn't even have the wheel. All they had were their own eyes. Yet they were able to make very precise observations of the stars.

Maya Calendars

We all know that there are 365 days in a year, plus an extra day every fourth year, or leap year. These numbers are the result of years of study of the sun and the seasons. The Maya, working without scientific tools, calculated that there were 365.2420 days in a year. Modern astronomers used modern technology to measure the year at 365.2422 days!

The Maya created a solar calendar, or calendar based on the movement of the sun. This calendar is similar to our calendar, but there are some differences. We divide our year into twelve months. The Maya divided their year into eighteen months with names like Pop and Zip. A special five-day "month" completed the 365-day year.

Besides their 365-day solar calendar, Maya astronomers created another calendar called the Sacred Round. This calendar was 260 days long and was used to keep track of religious

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holidays and other important events.

Because the Maya had two calendars, each day had two names. One name came from the Sacred Round and the other from the solar calendar. This also meant that all Maya people had two birthdays.

Astronomy at Work

We can see the results of Maya astronomy in the placement of their temples and pyramids, the large structures they built in their cities. These structures were built so the sun would shine directly on key areas on certain days. In the Maya site Chichén Itzá, for example, the sun of the spring and fall equinoxes casts the shadow of a serpent statue onto the pyramid steps. As the sun rises, the shadow slithers down the stairs.

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Name: _____ Date: _____

1. What were Maya people very knowledgeable about?

A. bicycles

B. astronomy

C. computers

D. biology

2. What does this text describe?

A. This text describes how Maya people built pyramids.

B. This text describes the religious holidays listed on the Sacred Round.

C. This text describes how Maya people figured out how many days there are in a year.

D. This text describes the Maya people's use of astronomy.

3. The Maya people were able to make very precise observations of the stars.

What evidence from the text supports this statement?

A. Maya astronomers created another calendar called the Sacred Round. This calendar was 260 days long and was used to keep track of religious holidays and other important events.

B. The Maya, working without scientific tools, calculated that there were 365.2420 days in a year. Modern astronomers used modern technology to measure the year at 365.2422 days!

C. The Maya, of course, did not have telescopes, computers, or satellites. They didn't even have the wheel. All they had were their own eyes.

D. Because the Maya had two calendars, each day had two names. One name came from the Sacred Round and the other from the solar calendar. This also meant that all Maya people had two birthdays.

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4. Read these sentences from the text.

> We can see the results of Maya astronomy in the placement of their temples and pyramids, the large structures they built in their cities. These structures were built so the sun would shine directly on key areas on certain days. In the Maya site Chichén Itzá , for example, the sun of the spring and fall equinoxes casts the shadow of a serpent statue onto the pyramid steps. As the sun rises, the shadow slithers down the stairs.

Based on this information, what can you conclude about the placement of temples and pyramids?

A. the placement was always random

B. the placement was not important to the Maya

C. the placement was decided by moonlight

D. the placement was calculated and precise

5. What is the main idea of this text?

A. One of the best examples of Maya astronomy is found in theMaya site Chichén Itzá. The sun of the spring and fall equinoxes casts the shadow of a serpent statue onto the pyramid steps. As the sun rises, the shadow slithers down the stairs.

B. Today, everyone only has one birthday. During ancient times, however, Maya people had two birthdays. This is because they used two different calendars, one very similar to the calendar we use today, the solar calendar, and a calendar for important events, the Sacred Round.

C. Even though Maya people did not have modern technologies, they were very knowledgeable in astronomy and were almost able to perfectly calculate the number of days in a year. We can see evidence of this in the structures they built in their cities.

D. The Maya people were a very ancient civilization. Because they did not understand how a lot of things in the world worked, they believed that their gods gave them an unclear view of the world that was "like breath on a mirror."

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6th Grade SCIENCE

NTI DAY 23

Gold Team-Log onto READWORKS.ORG to submit your answers

MAROON TEAM- Submit your answers through the MCMS NIT Virtual Classroom

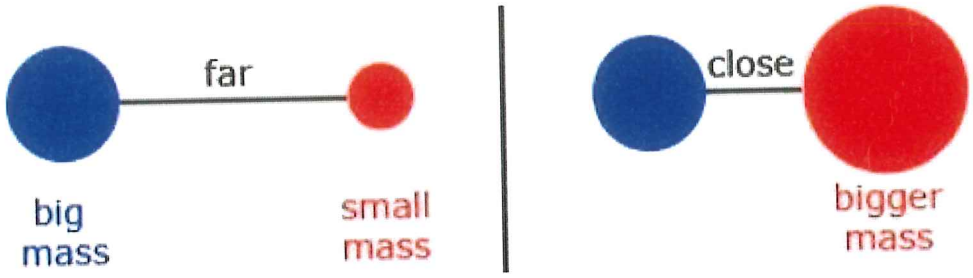
Why Don't People on the Other Side Fall Off?

very object in the universe attracts every other object with a force (gravity) that is proportional to the masses of the objects and inversely proportional to the squared distance between objects. Since the earth is so massive it attracts us (no matter where we stand) with a force strong enough to keep us from falling off. Read on for a more detailed explanation.

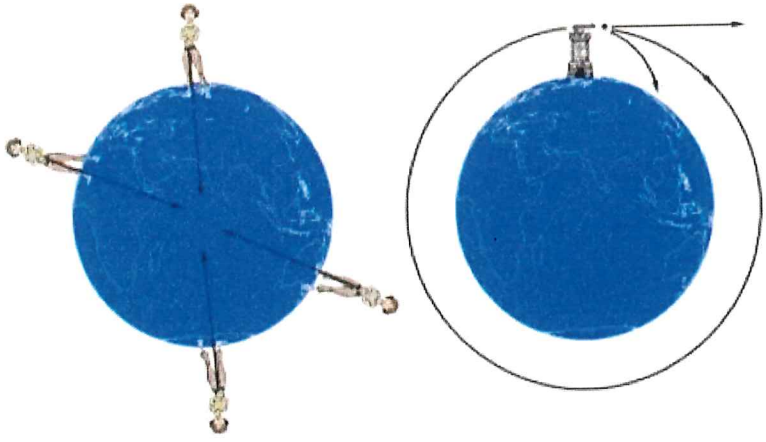
Fact 1. Mass is a measure of how much matter is in an object. On earth, mass and weight are effectively the same thing. [1]

Fact 2. The earth's mass [2] is approximately: 6,000,000,000,000,000,000,000,000 kg or 13,000,000,000,000,000,000,000,000 lb

Fact 3. Gravity is an attractive force between any two objects in the universe. The force attracting any two bodies is proportional to the product of their masses and is inversely proportional to the squared distance between them. Below, the gravitational attraction is stronger for the right-most pair of objects because they are more massive and closer together.



The attractive force of gravity acts between the center of two objects. In the case of people standing on the earth's surface, the effect of gravity is to attract us towards the center of the earth. As a result, no matter where you stand on the earth, you don't fall off.



Gravity is also the reason why the moon (and satellites) orbit the earth and why we orbit the sun. But then why doesn't the moon crash into the earth? The moon is, in fact, constantly falling towards earth, it is just that it keeps missing. With an initial motion along the path of the orbit, the moon can continually fall towards earth without ever reaching it. This is illustrated on the right in the above diagram, where a cannon is shown firing a cannonball. If the speed of the cannonball is too slow it will crash into the earth. If the speed is too fast, the cannonball will escape the gravitational attraction of the earth. But, if the speed is just right, then the cannon ball will continually fall towards the earth, but never reach it – it will orbit the earth.[3]

[1] An object's weight is a measure of how much gravity is acting on it. An object weighs less on the moon because the moon's mass, and therefore gravitational attraction, is less. An object's mass, however, is the same no matter where it is.

[2] A typical plane with people, cargo and fuel has a mass of 70,000 kilograms (kg) (154,322 pounds (lb) or 77.16 tons). If we compare the mass of the earth to the distance between the earth and the sun, then the mass of a plane would be approximately the diameter of an atom.

[3] Objects will orbit the earth only if they are above earth's atmosphere, where particles in the earth's atmosphere do not slow it down.

Comprehension Questions

1. What is gravity?

1. **an attractive force between any two objects in the universe**
2. **a measure of how much matter is in an object**
3. **the product of two masses and the distance between them**
4. **an object that can continually fall towards Earth without ever reaching it**

2. What is an effect of gravity?

1. **An effect of gravity is to decrease the mass of people standing on the earth's surface.**
2. **An effect of gravity is to increase the mass of people standing on the earth's surface.**
3. **An effect of gravity is to attract people on the earth's surface towards the center of the earth.**
4. **An effect of gravity is to attract people on the earth's surface towards the earth's atmosphere.**

Read Fact 3 and look at the diagram below it.

Gravity is an attractive force between any two objects in the universe. The force attracting any two bodies is proportional to the product of their masses and is inversely proportional to the squared distance between them. Below, the gravitational attraction is stronger for the right-most pair of objects because they are more massive and closer together.

Based on this information, what can you conclude about the number of factors that affect gravitational attraction?

1. There are at least five factors that affect gravitational attraction.
2. There are at least four factors that affect gravitational attraction.
3. There are at least three factors that affect gravitational attraction.
4. There are at least two factors that affect gravitational attraction.

4. Read Fact 3 and look at the diagram below it.

Gravity is an attractive force between any two objects in the universe. The force attracting any two bodies is proportional to the product of their masses and is inversely proportional to the squared distance between them. Below, the gravitational attraction is stronger for the right-most pair of objects because they are more massive and closer together.

Based on this information, what might happen to the gravitational attraction between the right-most pair of objects if they were moved farther apart?

1. The gravitational attraction between them would increase a lot.
2. The gravitational attraction between them would increase slightly.
3. The gravitational attraction between them would decrease.
4. The gravitational attraction between them would first decrease slowly and then increase rapidly.

5. What is the main idea of this text?

1. The force of gravity keeps people from falling off the earth.
2. Mass and weight are effectively the same thing on Earth.
3. The moon is able to continually fall towards Earth without ever reaching it.
4. Gravity is the reason why the moon and satellites orbit the earth.

6. Read these sentences from the text.

In the case of people standing on the earth's surface, the effect of gravity is to attract us towards the center of the earth. As a result, no matter where you stand on the earth, you don't fall off.

What is the meaning of "attract" as it is used here?

1. tempt
2. interest
3. pull
4. lift

7. Read this sentence from the text.

Since the earth is so massive it attracts us (no matter where we stand) with a force strong enough to keep us from falling off.

What punctuation marks could the author have used instead of parentheses in this sentence?

1. **semicolons**
2. **commas**
3. **colons**
4. **brackets**

8. What is mass?

9. What is the gravity between two objects proportional to?

10. If the earth were less massive, what effect might that have on the gravitational attraction between the earth and the people on its surface? Support your answer with evidence from the text.

Name: _____

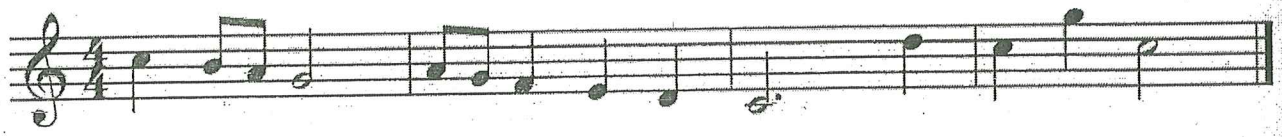
Class: _____

NOTE NAMES

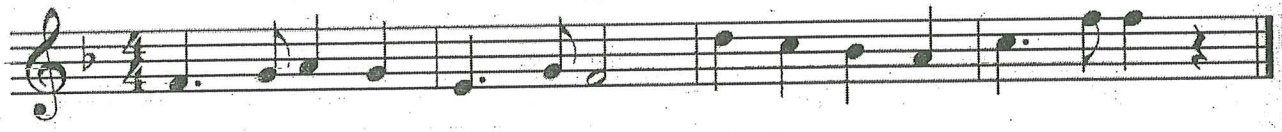
Quiz 29

Identifying Notes in the Treble Clef

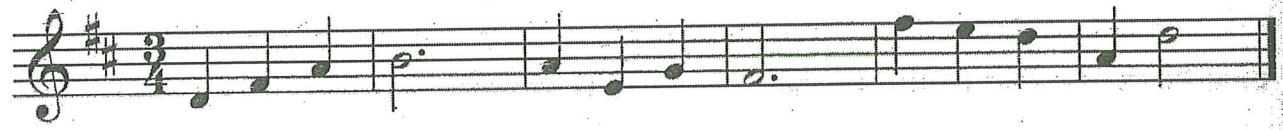
DIRECTIONS: Circle every note that is a G.

1. 

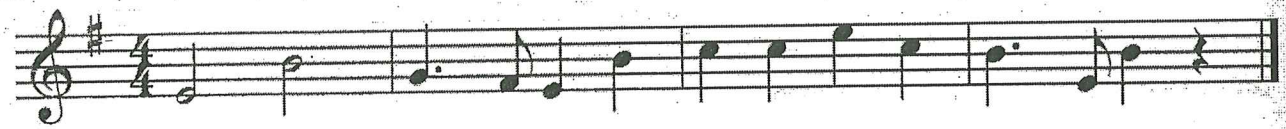
DIRECTIONS: Circle every note that is an F.

2. 

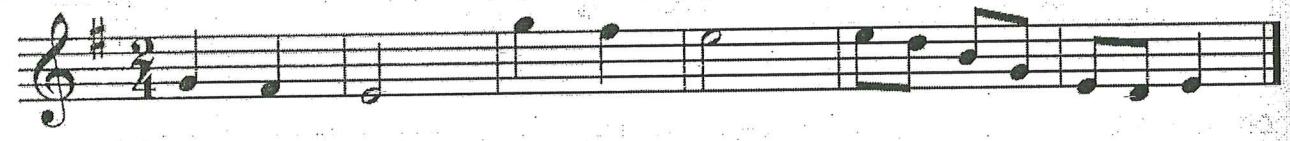
DIRECTIONS: Circle every note that is an A.

3. 

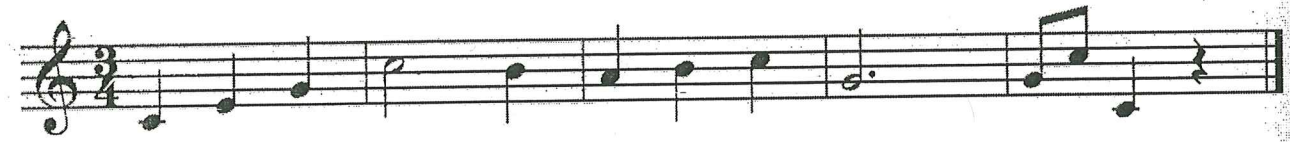
DIRECTIONS: Circle every note that is a B.

4. 

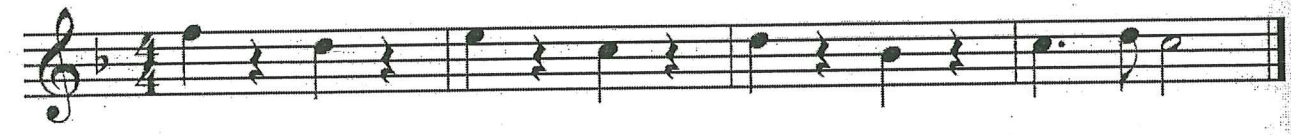
DIRECTIONS: Circle every note that is an E.

5. 

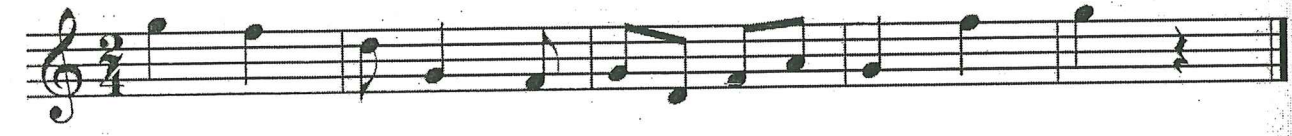
DIRECTIONS: Circle every note that is a C.

6. 

DIRECTIONS: Circle every note that is a D.

7. 

DIRECTIONS: Circle every note that is an F.

8. 

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MCMS NTI Physical Education Documentation Sheet

COMPLETE ONLY IF YOU CURRENTLY HAVE PHYSICAL EDUCATION

NTI Day	Activity	Minutes
Day 21		
Day 22		
Day 23		
Day 24		
Day 25		