GRADE 10 MATH
FINAL EXAM PRACTICE #2

Instructions:

Show work for best mark and to organize your thoughts
Keep answers exact whenever possible, otherwise Round answers to nearest two decimal places. Regardless, select the closest answer.
You may use your two - page course reference notes
Basic calculators are permitted.
A unit conversion sheet and formulae sheet will be provided.

Multiple Choice (Choose one best answer. Circle the letter of the correct response)

1. A simpler and exact way to say $5\sqrt{3}+\sqrt{27}$ is:

a. $8\sqrt{3}$ b. 13.8 c. $5\sqrt{81}$ d. 45

2. The line parallel to the line **y = 2x + 5** is:

a. y = 5 b. $y = 2x - \pi$ c. y = 5x + 2 d. y = 5x

3. The point **(0, 6)** is on the line:

a. y = 3x – 6 b. y = 5x c. y = 5x + 6 d. x = 6

4. The slope of the line that goes through the Points $\mathbf{P_1(2, -5)}$ and $\mathbf{P_2(-4, 0)}$ is:

a. $-\frac{5}{6}$ b. $-\frac{2}{5}$ c. 1 d. $\frac{6}{5}$

5. Simplify and evaluate the expression $\left(\frac{2*3*\sqrt{8}}{1.5^2-\pi}\right)^0$

a. 0.22 b. $\frac{1}{4}$ c. 1 d. none of these

6. A simpler exact expression for $\frac{3\sqrt{8}}{6\sqrt{2}}$ is:

a. 1 b. 0.5 c. $\sqrt{4}$ d. $3\sqrt{6}$

7. The **volume** of a **sphere** that has a diameter of **12 ft** is:

a. 904.8 ft^3 b. 90.4 ft^2 c. impossible d. $12\pi^2$ exactly

8. **12** feet is the same as how many **meters**?

a. 39.4 m b. 12 cm c. 50 ml d. 3.66 m

9. The distance between the two points **(4, 4)** and **(9, 4)** is:

a. 5 units b. 0 units c. (6.5, 4) d. None of these

10. The corner, **A**, of a triangle has a tangent that is equal to **1.89** (ie: *tan(A) = 1.89*). What is the **measure of the angle A**?

a. 62° b. impossible c. 0.033° d. 28°

11. If **two boxes** of smarties plus **four loose** smarties make a total of **64 smarties** altogether; how many smarties are there in each box?

a. 30 b. 62 c. Unknown d. 15

12. There is a scalene triangle with sides of length **5, 8, 10**. Which triangle is '*similar*'

a. 3, 4, 5 b. 8, 12, 13 c. 15, 24, 30 d. impossible

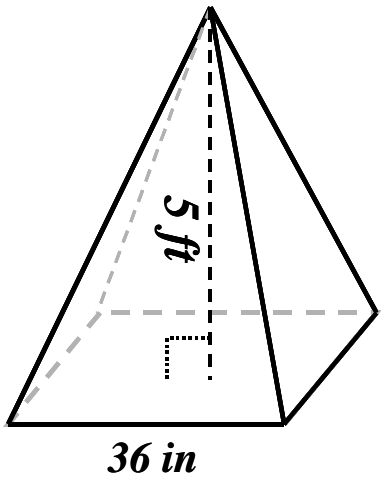
13. If **3x + 5 = 22** what does '**x**' equal?

a. 0 **b.** 22/5 **c.** 17/3 **d.** none of these answers

14. A **cone** fits perfectly inside a cylinder of the same height. The volume of the cone is **21 cm^3**. What is the **volume** of the cylinder?

a. 7 cm^3 **b.** 63 ml **c.** 0.63 m^3 **d.** $4\pi r^2$

15. The volume of this square pyramid is:



a. 60 in^3

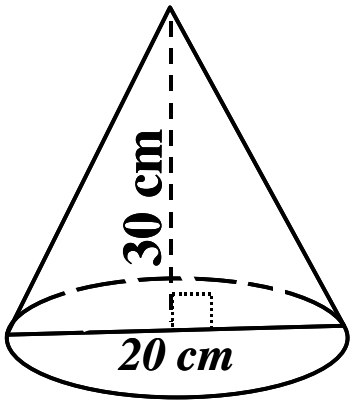
b. 180 ft^3

c. 77760 in^2

d. 15 cubic feet

Hint: eliminate stupid answers!

16. The volume of this cone is:



a. 600 in^3

b. 3.14 litres

c. 9424 cm^3

d. none of these

17. Solve for *x*: $\frac{3}{4}x+5=\frac{1}{2}x-1.5$

a. –26 **b.** 4/3 **c.** blue **d.** my brain hurts

Hint: if you don't know how to solve it, just test each answer to see which one works

18. Solve for *x*: $2x + 3 = 14$

a. 0 **b.** 11 **c.** 5 **d.** 5.5

19. Simplify: $\left(\frac{8x^2y}{2xy}\right)^2$

a. $16x^2$ **b.** $4x$ **c.** $32x^3y$ **d.** none of these

20. Simplify, keep exponents positive: $\left(\frac{9xy^6}{6x^2y^3}\right)^3$

a. $\frac{27y^9}{8x^3}$ **b.** $\frac{9y^9}{6}$ **c.** $\frac{729x^{-2}}{8y}$ **d.** none of these

21. Simplify: $\sqrt{8}*\sqrt{2}$

a. 16 **b.** 64 **c.** 4 **d.** none of these

22. Multiply: $(x+1)*(x+2)$

a. $x + 3$ **b.** $x^2 + 2$ **c.** $3x$ **d.** $x^2 + 3x + 2$

23. Multiply: $(x-1)*(x+5)$

a. $x^2 + 4x - 5$ **b.** $x + 4$ **c.** $-5x$ **d.** none of these

24. Factor: **$x^2 - x - 6$**

a. $(x - 3)(x + 2)$ **b.** $(x + 3)(x - 2)$ **c.** $(x + 3)^2$ **d.** 7

Test Hint: Test each answer by multiplying to see which one works, 'back-solve'.

25. Factor: **$3x^2 + 12x + 12$**

a. $3(x + 2)^2$ **b.** $x + 6$ **c.** $(3x + 2)*(x + 6)$ **d.** none of these

FREE RESPONSE questions. Show work for best marks.

1. Numbers sense:

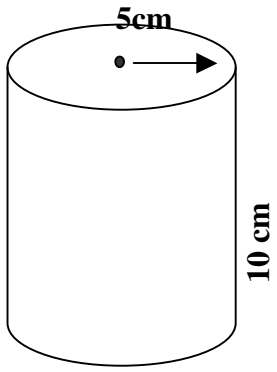
   a. list the first 10 prime numbers

   b. give three examples of rational numbers

   c. give three examples of irrational numbers

   d. list three perfect cube numbers

2. What is the **volume** of the **cylinder**:



3. Simplify the radical expressions:

a. $\frac{1}{\sqrt{7}}$ b. $5\sqrt{12}-(\sqrt{5}+\sqrt{3})$ c. $\frac{3\sqrt{72}}{18\sqrt{12}}$

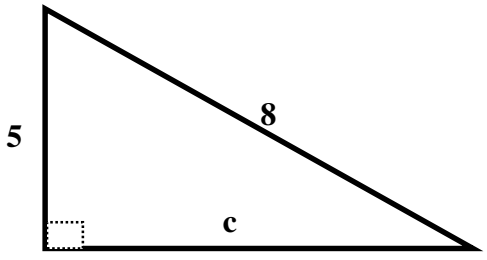
4. Factor completely:

a. $\mathbf{x^2 + x - 20}$ b. $\mathbf{64x^2y^2 - 9}$ c. $\mathbf{3x^2 - 3x - 20}$

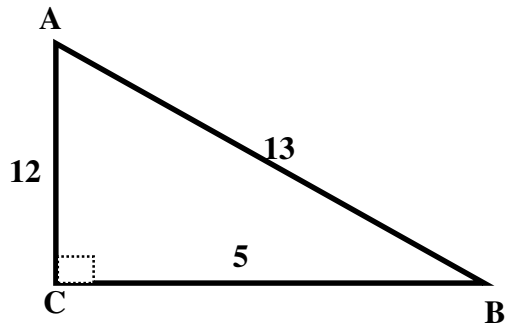
5. Simplify:

a. $\left(\frac{1}{2}\right)^{-2}$ b. $\left(\frac{37x^2z^3}{(4z)^{-2}}\right)^0$ where x =2 and z = -5 c. $4^{-1} * \left(\frac{1}{4}\right)^{-1/2}$

6. Find the length of **side c**:



7. Find the following:



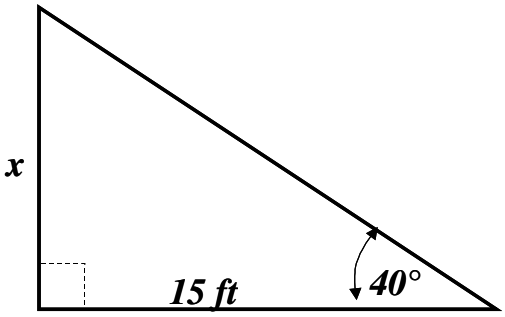
a. sin(∠A):

b. cos(∠A):

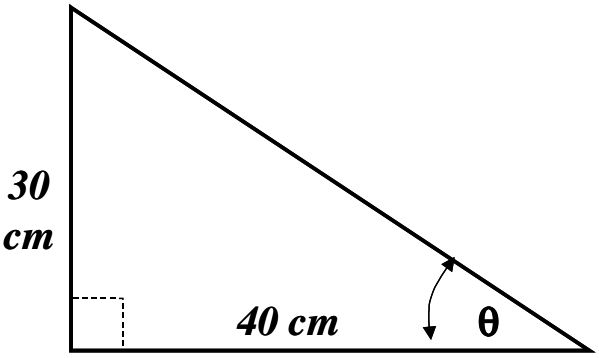
c. tan(∠A):

d. measure of ∠A (m∠A) in degrees:

8. Find the length of **side x**:



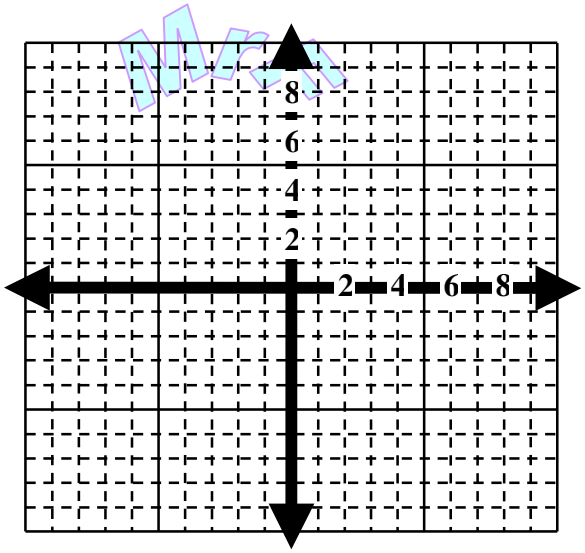
9. Find the measure of **angle θ** *(degrees)*:



10. Please graph and label:

a. Graph the line $y = \frac{3}{4}x - 3$

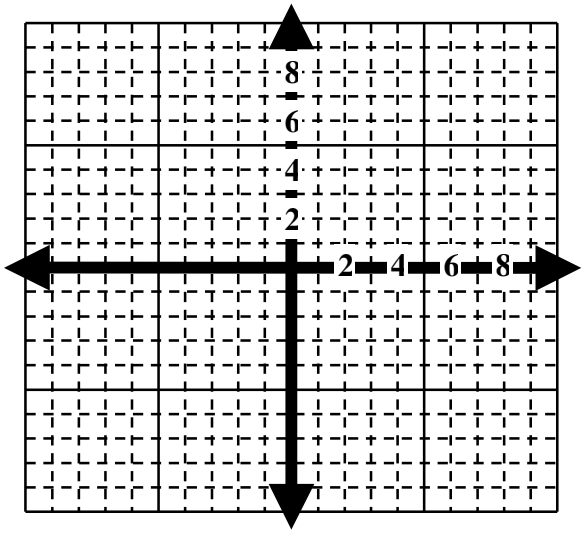
b. Graph the line **y = –3**



10a. Please graph and label:

a. Graph the line $2x + y = 10$

b. Graph the line $x - 3y = 8$



11. Find the equation of the line that runs through the two points $\mathbf{P_1(6, 6)}$ and $\mathbf{P_2(0, 4)}$.

12. Find the equation of the line that has a slope, **m,** of **2** and runs through the point **(–2, 4)**.

Note: you may not have learned this if class time was challenged

13. Find the equation of the line that is **parallel** to the line **2x + 3y = 12** but runs through the origin **(0, 0)**.

Note: you may not have learned this if class time was challenged

14. Convert the following measures to the indicated units:

a. **4.6 cm =** _____ in b. **35 ft =** _____ m c. **4.5kg =** _____ lbs

15. Convert **4 km/hr** into **meters per second** [m/sec].

16. Convert **$5.00 per litre** for a can of paint into **pennies per ml**.

17. Convert 5 lbs 6 oz into kg

18. Find the sine, cosine, and tangent of angle θ in the given right triangle. Find the measure of angle θ also.

(exact answers if you plan on Precalc, decimal if you plan on Applied)