Name: Answer Key Date: _____

Final Exam Practice B

Questions for this QuesT will be formatted into three columns:

Questions in column 1 are the basic, essential skills. You must answer these to pass. Answering these questions correctly will result in a 60% for this question.	Questions in column 2 are a tier up from column 1. Answering these correctly will result in an 80% for this question.	Questions in column 3 show mastery of the topic. Answering these correctly will result in a 100% for this question.

Please ask if you have any questions!

Simplify:

1a) $x^2 * x^5 =$ x^7

2a) $\frac{x^7}{x^4} =$ x^3

3a) $3^{2^3} =$ 3^6 or 729

Simplify:

1b) $2x^5(3x^3) =$ $6x^8$

2b) $\frac{9x^3}{3x} =$ $3x^2$

3b) $(3x^2)^3 =$ $27x^6$

Simplify:

1c) $2x(y^3)(5x^2)(z^0)(y^3)(5z^4)^0 =$

$10x^3y^6$

2c) $\frac{12z^0}{3x^5(2y^2)(1z^2)(z^4)(x^2)} =$

$6x^7y^{-4}$

$\frac{2}{x^7y^2z^6}$

3c) $\frac{(6x^4)^2}{12x^5} =$ $\frac{36x^8}{12x^5}$

$3x^3$

Simplify:

4a) $\frac{1}{x^2} * \frac{1}{x^5} =$ $\frac{1}{x^7}$

5a) $-3^2 =$ -9

$(-3)^3 =$ -27

Simplify:

6a) $4x + 9 + 6x + 5 =$

$10x + 14$

Simplify:

4b) $\frac{16}{4x^3}(\frac{1}{2x^2})^3 =$ $\frac{16}{4x^3}\left(\frac{1}{8x^6}\right)$

$\frac{16}{32x^9} = \frac{1}{2x^9}$

5b) $(-3x^2)^5(4x^3) =$

$-243x^{10}(4x^3)$

$-972x^{13}$

Simplify:

6b) $3x^2 + 5x + 2 - 9x + 3x^2 - 4 =$

$6x^2 - 4x - 2$

Simplify:

4c) $(\frac{2}{3x^2})^2(\frac{3}{2x^2})^3 =$

$\frac{4}{9x^4}\left(\frac{27}{8x^6}\right)\frac{108}{72x^{10}} = \frac{6}{4x^{10}}$

$\frac{3}{2x^{10}}$

5c) $(\frac{3}{-x^2})^3(\frac{-3}{4x^3})^2(\frac{-5}{7x^2})^0 =$

$\frac{27}{-x^6}\left(\frac{9}{16x^6}\right)\frac{1}{1}$

$\frac{243}{-16x^{12}}$

Simplify:

6c) $2x^2 - 3x^3 + 6 + 4a^3 - 3a + 2x^2 - 5x^3 + 2a - 7$

$-8x^3 + 4x^2 + 4a^3 - a - 1$

Expand:

7a) $5(x + 3) =$

$5x + 15$

Expand:

8a) $2x(3x^2 + 5x + 4) =$

$6x^3 + 10x^2 + 8x$

Simplify:

9a) $\frac{8x+4}{2} =$

$4x + 2$

Expand:

7b) $4x(2x^2 - 5x) =$

$8x^3 - 20x^2$

Expand:

8b) $-3x^2(5x^2 - 4x + 2) =$

$-15x^4 + 12x^3 - 6x^2$

Simplify:

9b) $\frac{6}{12x-18} =$

$\frac{1}{2x-3}$

Expand:

7c) $\frac{8}{2x^2}\left(\frac{1}{2x^2-3x}\right)^0 =$

$\frac{8}{2x^2}(1) = \frac{8}{2x^2} = \frac{4}{x^2}$

Expand:

8c) $-6x^4(2x^2 + 5x - 4) =$

$-12x^6 - 30x^5 + 24x^4$

Simplify:

9c) $\frac{32x^2+24x}{8x} - 2(3x - 6) =$

$4x + 3 - 6x + 12$

$-2x + 15$

Solve for x:

10a) $\frac{1}{3}(9x+18) =$

$\frac{9x}{3} + \frac{18}{3} = 3x + 6$

11a) $x + 9 = 14$
$-9 \quad -9$

$x = 5$

12a) $\frac{4x}{4} = \frac{28}{4}$

$x = 7$

Solve for x:

10b) $\frac{-2}{3}(15x-9) =$

$\frac{-30x}{3} + \frac{18}{3} = -10x + 6$

11b) $x - 4 = -19$
$+4 \quad +4$

$x = -15$

12b) $(3)\frac{-x}{3} = 7\,(3)$

$-x = 21$

$x = -21$

Solve for x:

10c) $\frac{-4x}{1}(\frac{2}{5}x^2 - \frac{2}{3}x - 2) =$

$\frac{-8x^3}{5} + \frac{8x^2}{3} + 8x$

11c) $-4 - x = 18$
$+4 \quad +4$

$-x = 22$

$x = -22$

12c) $\frac{-8x}{-8} = \frac{28}{-8}$

$x = -3.5$

Solve for x:

13a) $2x + 2 = 12$

$-2 \quad -2$

$\frac{2x}{2} = \frac{10}{2}$

$x = 5$

14a) $\frac{x}{3} - 4 = 0$ $+4$ $+4$

$(3)\frac{x}{3} = 4(3)$

$x = 12$

15a) $\frac{3(x+2)}{3} = \frac{21}{3}$

$x + 2 = 7$

$-2 \quad -2$

$x = 5$

Solve for the unknown:

13b) $3y - 5 = -29$

$+5 \quad +5$

$\frac{3y}{3} = \frac{-24}{3}$

$y = -8$

14b) $5 - \frac{x}{4} = -3$ -5 -5

$(-4)-\frac{x}{4} = -8(-4)$

$x = 32$

15b) $\frac{4(3x-5)}{4} = \frac{52}{4}$

$3x - 5 = 13$

$+5 \quad +5$

$\frac{3x}{3} = \frac{18}{3}$ $\quad x = 6$

Solve for x:

13c) $-4 - \frac{4x}{3} = 12$

$+4 \quad +4$

$(3)-\frac{4x}{3} = 16(3)$

$\frac{-4x}{-4} = \frac{48}{-4}$ $\quad x = -12$

14c) $\frac{32}{x} - 4 = 0$

$+4 \quad +4$

$x\frac{32}{x} = 4x$

$\frac{32}{4} = \frac{4x}{4}$ $\quad x = 8$

15c) $(3)\frac{6+x}{3} = 5$ (3)

$6 + x = 15$

$-6 \quad -6$

$x = 9$

Solve for x:

16a) $9x = 3x + 12$

$-3x \quad -3x$

$\frac{6x}{6} = \frac{12}{6}$

$x = 2$

Solve for x:

16b) $4x - 3 = -6x + 37$

$+6x \quad +6x$

$10x - 3 = 37$

$+3 \quad +3$

$\frac{10x}{10} = \frac{40}{10}$

$x = 4$

Solve for x:

16c) $3x - 8 = 4(2x + 3)$

$3x - 8 = 8x + 12$

$-3x \quad -3x$

$-8 = 5x + 12$

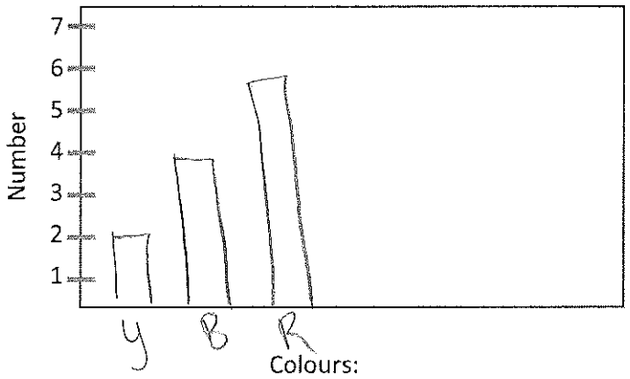
$-12 \quad -12$

$\frac{-20}{5} = \frac{5x}{5}$

$-4 = x$

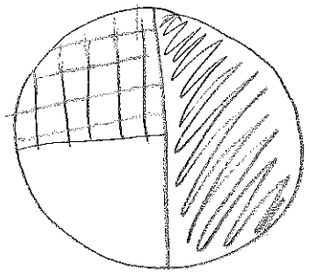
Graph the following information in a bar graph:

17a) 2 yellow, 4 blue, 6 red



Create a pie graph with the following information:

17b) 5 red, 5 green, 10 yellow



= red

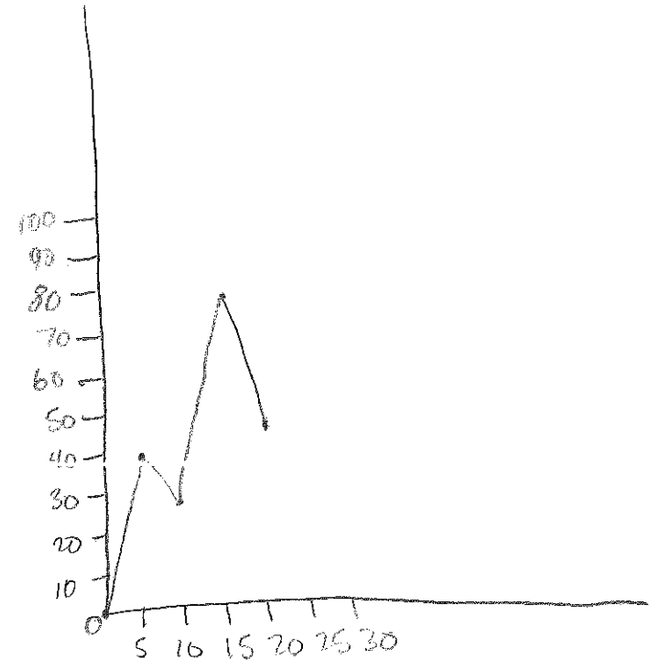
= green

= yellow

Create a line graph using the following information:

17c)

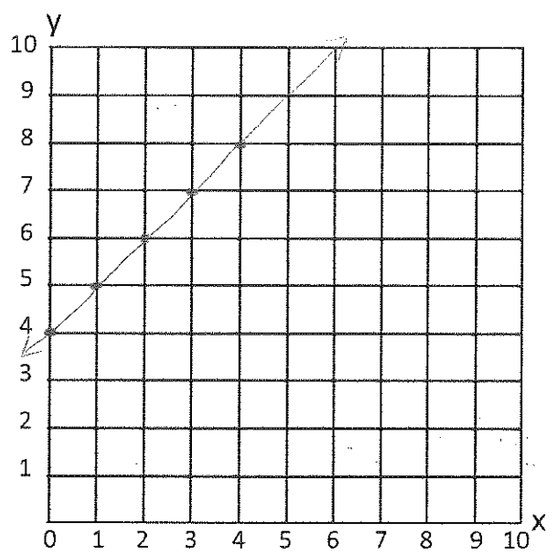
0 sec	0 km/hr
5 sec	40 km/hr
10 sec	30 km/hr
15 sec	80km/hr
20 sec	50 km/hr



Graph the following equation:

18a) $y = x + 4$

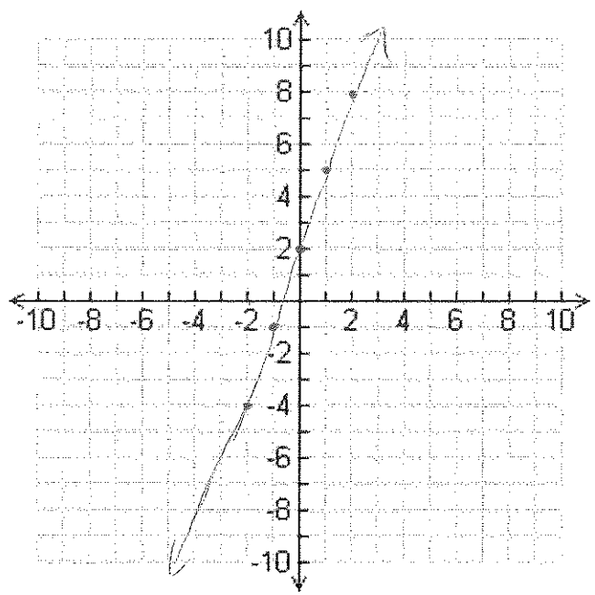
x	y
0	4
1	5
2	6
3	7
4	8



Graph the following equation

18b) $y = 3x + 2$

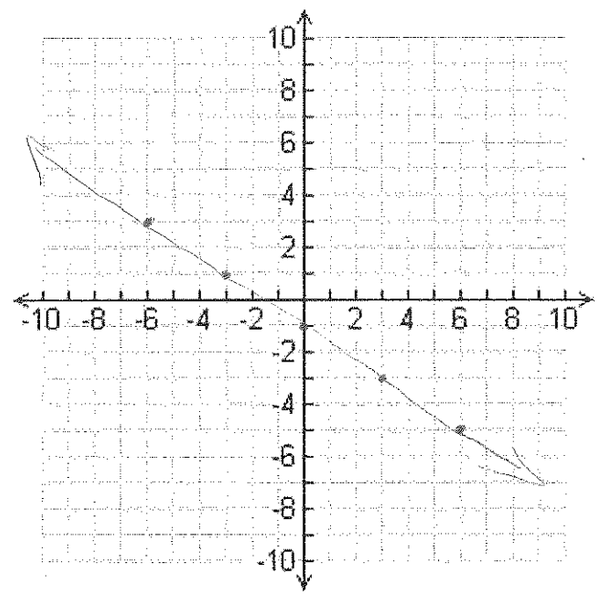
x	y
-2	-4
-1	-1
0	2
1	5
2	8



Graph the following equation

18c) $y = -\frac{2}{3}x - 1$

x	y
6	-5
3	-3
0	-1
-3	1
-6	3



19a) How many milligrams in a gram? ____
1000

How many centimetres in a metre? ____
100

How many litres in a kilolitre? ____
1000

20a) Convert 15000 grams (g) to kilograms (kg)

$15{,}000\,g \times \frac{1\,kg}{1000\,g} = 15\,kg$

21a) Convert 9 yards to feet (1 yard = 3 feet)

$9\,y \times \frac{3\,ft}{1\,y} = 27\,ft$

Enter the next number in the sequence

22a) 12 16 20 24 28
+4 +4 +4 +4

19b) (No question here)

20b) Convert 5321 litres (l) to millilitres (ml)

$5321\,L \times \frac{1000\,mL}{1\,L} = 5{,}321{,}000\,mL$

21b) Convert 12 miles to kilometres (1.6 kilometres = 1 mile)

$12\,mi \times \frac{1.6\,km}{1\,mi} = 19.2\,km$

Enter the next number in the sequence

22b) 5 8 13 20 29 40
+3 +5 +7 +9 +11

19c) (No question here)

20c) Convert 252 cm to mm

$252\,cm \times \frac{10\,mm}{1\,cm} = 2{,}520\,mm$

21c) Convert 5 yards (y) to centimetres (cm) (1 yard = 3 feet, 1 foot = 12 in, 1 in = 2.54 cm)

$5\,y \times \frac{3\,ft}{1\,y} \times \frac{12\,in}{1\,ft} \times \frac{2.54\,cm}{1\,in}$

$= 457.2\,cm$

Enter the next number in the sequence

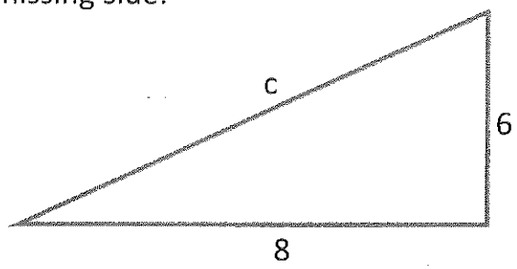
22c) 2 3 6 7 14 15 26
+1 +3 +1 +7 +1 +11

Solve:

23a) $\sqrt{25} =$ 5

Find the missing side:

24a)



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

$6^2+8^2=c^2$

$36+64=c^2$

$100=c^2$

$\sqrt{100}=c$

$10=c$

Solve:

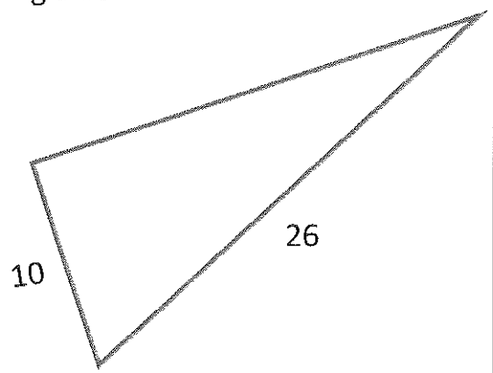
23b) Colten's yard is square. It is 49 sq. feet. How long is each side of the yard?

$7\overline{)49}$ 7

$\sqrt{49}=7$

Find the missing side:

24b)



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

$a^2+10^2=26^2$

$a^2+100=676$

$676-100=a^2$

$576=a^2$

$\sqrt{576}=a$

$24=a$

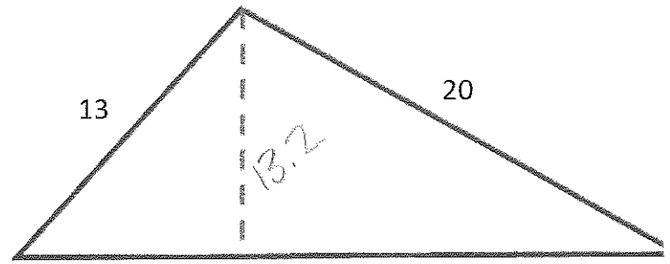
Estimate

23c) $\sqrt{30}$ $5^2=25$ $6^2=36$

5.5

Explain why the below triangle is impossible with the numbers given.

24c)



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

$a^2+15^2=20^2$

$a^2+225=400$

$400-225=a^2$

$175=a^2$

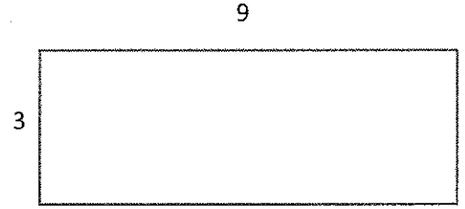
$\sqrt{175}=a$

$13.2=a$

The height can't be longer than the hypotenuse

Find the area of the rectangle:

25a)



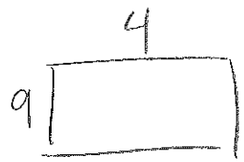
$A = l \times w$

$= 9 \times 3$

$= 27$

Find the area of the yard:

25b) Sarah has a field that is 4 metres long and 9 metres wide. What is the area of her field?



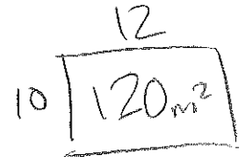
$A = l \times w$

$= 4 \times 9$

$= 36$

Find the length of fence needed

25c) Cherise's yard is $120m^2$. One side of the yard is 12m long. How much total fencing does Cherise need if she wants to fence her whole yard.



$A = l \times w$

$\frac{120}{12} = \frac{12 \times w}{12}$

$10 = w$

$10 \times 2 = 20$

$12 \times 2 = 24$

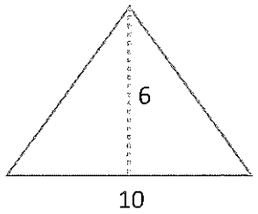
$+$

44

44m of fencing

Find the area of the triangle

26a)



$a = \frac{b \times h}{2}$

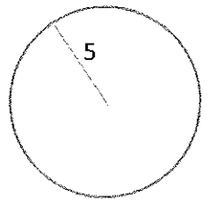
$= \frac{10 \times 6}{2}$

$= \frac{60}{2}$

$a = 30$

Find the area of the circle

26b)



$a = \pi r^2$

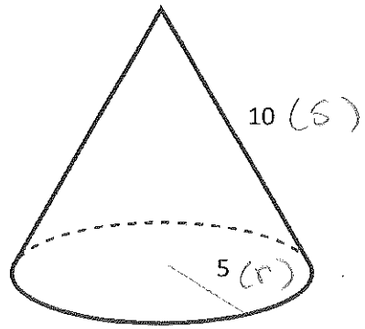
$= \pi (5)^2$

$= \pi (25)$

$a = 78.5$

Find the total surface area

26c)



$a = \pi rs + \pi r^2$

$= \pi (5)(10) + \pi (5)^2$

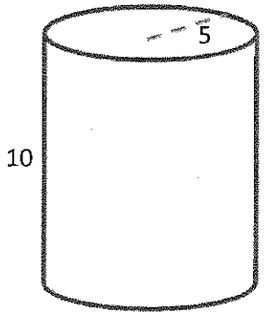
(25)

$= 157.1 + 78.5$

$a = 235.6$

Find the volume

27a)



$V = \pi r^2 h$

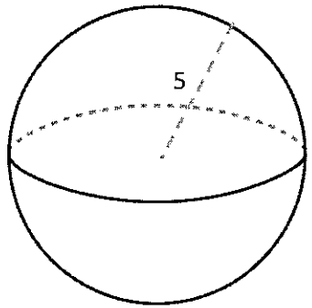
$= \pi (5)^2 (10)$

$= \pi (25)(10)$

$= 785.4$

Find the volume:

27b)



$V = \frac{4}{3} \pi r^3$

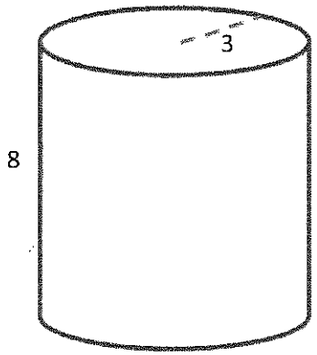
$= \frac{4}{3} \pi (5)^3$

$= \frac{4}{3} \pi (125)$

$= 523.6$

Find the surface area:

27c) This cylinder has no top or bottom



$SA = 2\pi rh + 2\pi r^2$

no top or bottom

$= 2\pi rh$

$= 2\pi (3)(8)$

$= 150.8$