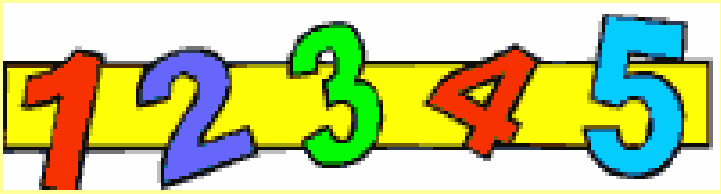
NQF Level: 2 **US No: 7480**

Assessment Guide

Primary Agriculture

Rational and irrational numbers and number systems



Assessor: . . . . . .

Workplace / Company: . . . . . .

Commodity: . . . . . Date: . . . . . .

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Before we start...

This assessment guide contains all necessary activities and instructions that will enable the assessor and learner to gather evidence of the learner's competence as required by the unit standard. This guide was designed to be used by a trained and accredited assessor whom is registered to assess this specific unit standard as per the requirements of the AgriSETA ETQA.

Prior to the delivery of the program the facilitator and assessor must familiarise themselves with content of this guide, as well as the content of the relevant Learner Workbook.

Please Note:

This Unit Standard **7480** Assessment Guide must be read in conjunction with the generic Assessor Guide as prescribed and published by the AgriSETA.

The assessor, facilitator and learner must plan the assessment process together, in order to offer the learner the maximum support, and the opportunity to reflect competence.

The policies and procedures that are required during the application of this assessment are available on the website of the AgriSETA and should be strictly adhered to. The assessor must familiarise him/herself with this document before proceeding.

This guide provides step-by-step instructions for the assessment process of:

Title:	Demonstrate understanding of rational and irrational numbers and number systems				
US No:	**7480**	**NQF Level:**	2	**Credits:**	3

This unit standard is one of the building blocks in the qualification listed below. Please mark the qualification you are currently assessing, because that will be determined by the context of application:

Title	ID Number	NQF Level	Credits	Mark
National Certificate in Animal Production	48976	2	120	❒
National Certificate in Mixed Farming Systems	48977	2	120	❒
National Certificate in Plant Production	48975	2	120	❒

Please mark the learning program you are enrolled in:

Are you enrolled in a:	Y	N
Learnership?	❒	❒
Skills Program?	❒	❒
Short Course?	❒	❒

Note to Assessor:

If you are assessing this module as part of a full qualification or learnership, please ensure that you have familiarized yourself with the content of the qualification.

Activity Answers

1

SO 1

Instructions to learner:

Calculate and estimate

Learner Guide: Page 19 Facilitator Guide: Page 12

1. Calculate rational and irrational numbers with and without the use of technology

    1. 34 + 54
    2. 432 – 324
    3. 748 ÷3
    4. 230 x 84
    5. {(4890 – 342) ÷ 7}
    6. 2 – 34
    7. 9 – (74 + 63)
    8. (9 – 74) + 63
    9. 475 x 56
    10. 7456 ÷ 4329
    11. (9787 ÷ 87) x 2
    12. 324 ÷ 43
    13. (9800 ÷ 0) x (3 + 329920)
    14. 43290 ÷ 10 000
    15. (898923 ÷ 3) x (432 ÷ 3) + (24 – 74)

Model Answer(s):

1. 34 + 54 = 88
2. 432 – 324 = 108
3. 748 ÷3 = 249,33
4. 230 x 84 = 19320
5. {(4890 – 342) ÷ 7} = 649,71
6. 2 – 34 = -32
7. 9 – (74 + 63) = -128
8. (9 – 74) + 63 = -2
9. 475 x 56 = 26600
10. 7456 ÷ 4329 = 1,722
11. (9787 ÷ 87) x 2 = 224,988
12. 324 ÷ 43 = 7,53
13. (9800 ÷ 0) x (3 + 329920) = undefined

14. 43290 ÷ 10 000 = 4,329
15. (898923 ÷ 3) x (432 ÷ 3) + (24 – 74) = 299641 x 144 + -50 = 43148254

2. Estimate the following answers and round off to the nearest round figure

1. 54 + 78
2. 96 – 23
3. 5,126954 x 4,5
4. 25% of R39,99
5. 33☐ % of R399,99
6. 1 x 54
   8
7. 0,83 of 500
8. 3 x 500
   100
9. 15% of 24500

Model Answer(s):

1. 54 + 78 = 132
2. 96 – 23 = 73
3. 5,126954 x 4,5 = 23
4. 25% of R39,99 = 25 x 39,99 = R10
100
5. 33☐ % of R399,99 = 33,333 x 399,99 = 133
100
6. 1 x 54 = 7
8
7. 0,83 of 500 = 83 x 500 = 415
100
8. 3 x 500 = 1500
100
9. 15% of 24500 =3675

Activity Answers

2

SO 2

Instructions to learner:

Calculate and convert

Learner Guide: Page 32 Facilitator Guide: Page 13

1. Simplify the fractions:

1. $\frac{9}{12}$
2. $\frac{16}{32}$
3. $\frac{21}{49}$
4. $\frac{18}{81}$
5. $\frac{36}{48}$
6. $\frac{88}{112}$
7. $\frac{78}{88}$
8. $\frac{91}{114}$
9. $\frac{57}{79}$
10. $\frac{1120}{1500}$
11. $\frac{45}{65}$
12. $\frac{17}{23}$
13. $\frac{35}{77} = \frac{5}{11}$

Model Answer(s):

1. $\frac{9}{12} = \frac{3}{4}$
2. $\frac{16}{32} = \frac{1}{2}$
3. $\frac{21}{49} = \frac{3}{7}$
4. $\frac{18}{81} = \frac{2}{9}$
5. $\frac{36}{48} = \frac{3}{4}$
6. $\frac{88}{112} = \frac{11}{14}$
7. $\frac{78}{88} = \frac{39}{44}$
8. $\frac{91}{114} = \frac{91}{144}$
9. $\frac{57}{79} = \frac{57}{79}$
10. $\frac{1120}{1500} = \frac{56}{75}$
11. $\frac{45}{65} = \frac{9}{13}$
12. $\frac{17}{23} = \frac{17}{23}$
13. $\frac{35}{77} = \frac{5}{11}$

2. Convert the following into percentage:

1. $\frac{1}{4}$
2. $\frac{6}{25}$
3. $\frac{9}{27}$
4. 0,675
5. 1,534

Model Answer(s):

1. $\frac{1}{4} \times 100 = 25\%$
2. $\frac{6}{25} \times 100 = 24\%$
3. $\frac{9}{27} \times 100 = 33{,}33\%$
4. $0{,}675 = \frac{675}{1000} \times 100 = 67{,}5\%$
5. $1{,}534 = \frac{1534}{1000} \times 100 = 153{,}4\%$

3. Convert the following fractions to decimal fractions:

1. $\frac{1}{5}$ 2 $\frac{6}{10}$

3. $\frac{12}{16}$ 4 $\frac{13}{27}$

Model Answer(s):

1. $\frac{1}{5} = \frac{2}{10} = 0,2$ *2* $\frac{6}{10} = 0,6$

3. $\frac{12}{16} = \frac{6}{8} = \frac{750}{1000} = 0,75$ *4* $\frac{13}{27} = 0,48148148...$

4. Calculate the following:

a $^3/_4 + {}^1/_2$

b $^1/_2 + {}^1/_4$

c $^7/_8 - {}^3/_5$

d $^{11}/_2 - {}^1/_3$

e $^{15}/_4 + 3^2/_3$

f $^1/_4 \times {}^1/_2$

g $^1/_4 \times {}^3/_4$

h $^1/_2 \div {}^7/_8$

i $^{10}/_{15} \div {}^1/_3$

j $^{14}/_{32} \div {}^{19}/_5$

k If a field is divided into 8 equal sections, and 5 sections are planted with cotton, what fraction of the field has cotton growing on it?

l What is $^5/_6$ of R120?

m How far is $^2/_3$ of 42 km?

n $^1/_5$ of 965 workers are absent because of taxi strikes.

a How many workers are absent?

b How many workers are at work?

o $^3/_5$ of a sum of money is R 80.

a How much is $^1/_5$ of the sum of money?

b What is the total sum of money?

p A farmer buys a bull weighing 360 kg. A month later the bulls weight has increased by $^{1}/_{12}$. How much does the bull weigh now?

q At a cattle sale a bull worth R 5400 is sold at $^{2}/_{3}$ of its value. What was the sale price of the bull?

Model Answer(s):

1. $^{3}/_{4} + {}^{1}/_{2} = {}^{3}/_{4} + {}^{2}/_{4} = {}^{5}/_{4}$
2. $^{1}/_{2} + {}^{1}/_{4} = {}^{2}/_{4} + {}^{1}/_{4} = {}^{3}/_{4}$
3. $^{7}/_{8} - {}^{3}/_{5} = {}^{35}/_{40} + {}^{24}/_{40} = {}^{59}/_{40}$
4. $^{11}/_{2} - {}^{1}/_{3} = {}^{33}/_{6} + {}^{2}/_{6} = {}^{35}/_{6}$
5. $^{15}/_{4} + 3^{2}/_{3} = {}^{45}/_{12} + {}^{44}/_{12} = {}^{89}/_{12}$
6. $^{1}/_{4} \times {}^{1}/_{2} = {}^{1}/_{8}$
7. $^{1}/_{4} \times {}^{3}/_{4} = {}^{3}/_{16}$
8. $^{1}/_{2} \div {}^{7}/_{8} = {}^{1}/_{2} \times {}^{8}/_{7} = {}^{4}/_{7}$
9. $^{10}/_{15} \div {}^{1}/_{3} = {}^{10}/_{15} \times {}^{3}/_{1} = {}^{2}/_{1}$
10. $^{14}/_{32} \div {}^{19}/_{5} = {}^{14}/_{32} \times {}^{5}/_{19} = {}^{35}/_{304}$
11. If a field is divided into 8 equal sections, and 5 sections are planted with cotton, what fraction of the field has cotton growing on it? $^{5}/_{8}$
12. What is $^{5}/_{6}$ of R120? $^{5}/_{6} \times$ R120 = R100
13. How far is $^{2}/_{3}$ of 42 km? $^{2}/_{3} \times 42$ km = 28 km
14. $^{1}/_{5}$ of 965 workers are absent because of taxi strikes.
    a. How many workers are absent? $^{1}/_{5}$ ox 965 = 193
    b. How many workers are at work? $^{4}/_{5} \times 965 = 772$
15. $^{3}/_{5}$ of a sum of money is R 80.
    a. How much is $^{1}/_{5}$ of the sum of money? R80 x $^{1}/_{3}$ = R26,67
    b. What is the total sum of money? R26,67 x 5 = R133,33
16. A farmer buys a bull weighing 360 kg. A month later the bulls weight has increased by $^{1}/_{12}$. How much does the bull weigh now? 360 + (360 x $^{1}/_{12}$) = 390 kg
17. At a cattle sale a bull worth R 5400 is sold at $^{2}/_{3}$ of its value. What was the sale price of the bull? 5400 x $^{2}/_{3}$ = R3600

Activity Answers

3

SO 2

Instructions to learner:

Calculate and simplify

Learner Guide: Page 36 Facilitator Guide: Page 13

1. Work out the answers without using a calculator

   a $(^5/_8 + ^2/_3) \times (^1/_3 \times ^1/_2)$

   b $^3/_4 + ^1/_4 \times (^1/_2$ of 2)

   c $3 + ^7/_8 - (\ ^1/_8 \times 0{,}5)$

   d $^1/_4 + ^1/_4$ of $(9 \times 2 \div 3 + 3 - 1)$

   e $(72 - 6) \div 8 \times 2 + 9 - 7$

   f What $^1/_3$ of 36 added to $(36 - 12)$ and divided by $3 + 15 - 6$

Model Answer(s):

a. $(^5/_8 + ^2/_3) \times (^1/_3 \times ^1/_2) = (^{15}/_{24} + ^{16}/_{24}) \times ^1/_6 = ^{31}/_{24} \times ^1/_6 = ^{31}/_{144}$

b. $^3/_4 + ^1/_4 \times (^1/_2$ *of 2)* $= ^3/_4 + ^1/_4 \times ^1/_2 \times 2 = ^3/_4 + ^1/_4 = ^4/_4 = 1$

c. $3 + ^7/_8 - (^1/_8 \times 0{,}5) = ^3/_1 + ^7/_8 - (^1/_8 \times ^1/_2) = ^3/_1 + ^7/_8 - ^1/_{16} = ^{48}/_{16} + ^{14}/_{16} - ^1/_{16} = ^{61}/_{16}$

d. $^1/_4 + ^1/_4$ *of* $(9 \times 2 \div 3 + 3 - 1) = ^1/_4 + ^1/_4 \times ^8/_1 = ^1/_4 + ^2/_1 = ^1/_4 + ^8/_4 = ^9/_4$

e. $(72 - 6) \div 8 \times 2 + 9 - 7 = 18{,}5$

f. $^1/_3 \times ^{36}/_1 + (36 - 12) \div (3 + 15 - 6) = 12 + 24 \div 12 = 12 + 2 = 14$

2. Simplify the following:

   1. $3^3 \times 3^5 \times 3^9 \div 3^4$
   2. $(5^3 5^2)^2 + (3^4 \div 3)^4$
   3. 3^{-5}
   4. Which is the larger fraction?

   a) 0,379 or $^3/_8$

   b. 0,856 or $^4/_7$

Model Answer(s):

1. $3^3 \times 3^5 \times 3^9 \div 3^4 = 3^{13}$
2. $(5^3 5^2)^2 + (3^4 \div 3)^4 = 5^{10} + 3^{12}$
3. $3^{-5} = \frac{1}{243}$
4. *Which is the larger fraction?*

a) *0,379 or* $^3/_8$ $^3/_8 = 0{,}375$, *thus 0,379 is larger*

b) *0,856 or* $^4/_7$ $^4/_7 = 0{,}5714$ *thus 0,856 is larger*

3. Simplify the following:

1. 5a + 2b + c + 3a + 5b + 2c
2. 4y -2x - 4x -2y
3. 14m + 7n – 2mn + n
4. (3a + 6b) – (- 3a – 6b)
5. (24b + 14d – 10) ÷ 2
6. 6ab + 6ac + 6ac – 6ab
7. 3(2a -3b + c)
8. 16p – p
9. 24k + 4
10. 4rs – 4r + 5rs + 10r
11. (55abc +22ab) ÷ 11
12. (4m – 4n) – (-5m + 6n)

Model Answer(s):

1. *5a + 2b + c + 3a + 5b + 2c = 8a + 7b + 3c*
2. *4y -2x - 4x -2y = 2y -6x*
3. *14m + 7n – 2mn + n = 14m + 7n – 2mn*
4. *(3a + 6b) – (- 3a – 6b) = 3a + 6b + 3a + 6b = 6a + 12b*
5. *(24b + 14d – 10) ÷ 2 = 12b + 7d - 5*
6. *6ab + 6ac + 6ac – 6ab = 12ac*
7. *3(2a -3b + c) = 6a – 9b + 3c*
8. *16p – p = 15p*
9. *24k + 4 = 24k + 4*

10. *4rs – 4r + 5rs + 10r = 9rs + 6r*
11. *(55abc +22ab) ÷ 11 = 5abc + 2ab*
12. *(4m – 4n) – (-5m + 6n) = 4m – 4n + 5m – 6n = 9m – 10n*

My Notes ...

Activity Answers

4

SO 3

Instructions to learner:

Rewrite and simplify

Learner Guide: Page 42 Facilitator Guide: Page 14

1. Rewrite these in scientific notation

   a 3 687 834

   b 234 984

   c 996 000 007

   d 756 000 000

   e 0,009

   f 147,235654000

   g 0,005648

   h 0,000006002

   i 456,456

   j 831 563 000 000

Model Answer(s):

a. 3 687 834 = 3,687834 x 10^6

b. 234 984 = 2,34984 x 10^5

c. 996 000 007 = 9,96000007 x 10^8

d. 756 000 000 = 7,56 x 10^8

e. 0,009 = 9 x 10^{-3}

f. 147,235654000 = 1,47235654 x 10^2

g. 0,005648 = 5,648 x 10^{-3}

h. 0,000006002 = 6,002 x 10^6

i. 456,456 = 4,56456 x 10^2

j. *831 563 000 000 = 8,31563 x 10^{11}*

2. Rewrite these in Ordinary Numbers

   a $7{,}413 \times 10^4$

   b $7{,}524 \times 10^{-3}$

   c $6{,}14 \times 10^{-9}$

   d $0{,}7 \times 10^7$

e $3,027 \times 10^{2}$

f $0,324 \times 10^{3}$

g $8,791 \times 10^{-2}$

h $5,212 \times 10^{4}$

Model Answer(s):

a. $7,413 \times 10^{4} = 74130$

b. $7,524 \times 10^{-3} = 0,007524$

c. $6,14 \times 10^{-9} = 0,00000000614$

d. $0,7 \times 10^{7} = 7\ 000\ 000$

e. $3,027 \times 10^{2} = 302,7$

f. $0,324 \times 10^{3} = 324$

g. $8,791 \times 10^{-2} = 0,08791$

h. $5,212 \times 10^{4} = 52120$

3. Simplify the following without using a calculator

a $3,6 \times 10^{4} \times 3 \times 10^{2}$

b $4,25 \times 10^{-8} \times 5 \times 10^{7}$

c $1,98 \times 10^{8} \times 6 \times 10^{9}$

d $1,05 \times 10^{-2} \times 6,4 \times 10^{-4}$

e $7,34 \times 10^{6} \times 5,24 \times 10^{-1}$

Model Answer(s):

a. $3,6 \times 10^{4} \times 3 \times 10^{2} = 3,6 \times 3 \times 10^{4} \times 10^{2} = 10,8 \times 10^{6} = 1,08 \times 10^{7}$

b. $4,25 \times 10^{-8} \times 5 \times 10^{7} = 4,25 \times 5 \times 10^{-8} \times 10^{7} = 21,25 \times 10^{-1} = 2,125$

c. $1,98 \times 10^{8} \times 6 \times 10^{9} = 1.98 \times 6 \times 10^{8} \times 10^{9} = 11,88 \times 10^{17} = 1,188 \times 10^{18}$

d. $1,05 \times 10^{-2} \times 6,4 \times 10^{-4} = 1,05 \times 6,4 \times 10^{-2} \times 10^{-4} = 6,27 \times 10^{-6}$

e. $7,34 \times 10^{6} \times 5,24 \times 10^{-1} = 7,34 \times 5,24 \times 10^{6} \times 10^{-1} = 38,4616 \times 10^{5}$
$= 3,64616 \times 10^{6}$

My Notes ...

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Activity Answers

5

SO 3

Instructions to learner:

Calculations

Learner Guide: Page 45 Facilitator Guide: Page 14

1. In January Zondi's farm makes a profit of R3 600 in the State Lottery. He decides to share his profits with his brothers and sisters. He keeps one third for himself, gives one fifth to each of his two brothers and the remainder to his two sisters, equally shared.

   a What fraction does each of his sisters receive?

   b How much does each member of the family receive?

Model Answer(s):

What fraction does each of his sisters receive?

Total to sisters $1 - {}^{1}/_{5} - {}^{1}/_{3} = {}^{15}/_{15} - {}^{3}/_{15} - {}^{5}/_{15} = {}^{7}/_{15}$

Each sister ${}^{7}/_{15} \times {}^{1}/_{2} = {}^{7}/_{30}$

How much does each member of the family receive?

Zondi: $3600 \times {}^{1}/_{3} = R1200$

Each brother: $3600 \times {}^{1}/_{5} \times {}^{1}/_{2} = R360$

Each sister: $3600 \times {}^{7}/_{30} = R840$

2. Calculate the following:

   a $27 + 36 - 52 + 18$

   b $12 - 8$

   c $45 \div -9$

   d The temperature one morning in Dorpfontein is -5°C. The temperature at midday rises by 10°C and by 7pm that evening it has dropped by a further 12°C. What was the temperature at :

      ii midday?

      iii At 7 pm in the evening?

Model Answer(s):

a. 27 + 36 – 52 + 18 = -25

b. 12 – 8 = -20

c. 45 ÷ -9 = 5

d. The temperature one morning in Dorpfontein is -5°C. The temperature at midday rises by 10°C and by 7pm that evening it has dropped by a further 12°C. What was the temperature at :

i. midday? 5°C

ii. At 7 pm in the evening? -17°C

3. Paul buys the following at the local Co-op.

2.5 l cattle dip	@	R 150.39 per litre
2l weed killer	@	R 59.59 per litre
4 bags fertiliser	@	R 25.99 per bag
2 m wire mesh	@	R 61.89 per m
One packet of seeds	@	R 10.79

a What is the estimated total amount of money he needs? Round off to the nearest R1.

b What is the estimated total amount of money he needs? Round off to the nearest R10.

c What is the estimated total amount of money he needs? Round off to the nearest R100.

Model Answer(s):

a. What is the estimated total amount of money he needs? Round off to the nearest R1. R309

b. What is the estimated total amount of money he needs? Round off to the nearest R10. R310

c. *What is the estimated total amount of money he needs? Round off to the nearest R100. R300*

4. Calculate the following:

a 73 297 ÷ 4

b 21 592 x 542

c 99,97 ÷ 7

d (1 132 ÷ 3) x (5 ÷ 10)

e (-14 973 ÷ -4) x -2

Model Answer(s):

a. 73 297 ÷ 4 = 18324,25
b. 21 592 x 542 = 11702864
c. 99,97 ÷ 7 = 14,28142857
d. (1 132 ÷ 3) x (5 ÷ 10) = 377,333333 x 0,5 = 188,6666667
e. (-14 973 ÷ -4) x -2 = -7486,5

5. Calculate the following:

a. 37% of R 750

b. One fifth of R 927

c. 0.347 of R 84 975

d. One quarter of R 648

e. 29,5% of R 212

f. $\frac{10}{7} \times 362$

g. $4\frac{27}{100} \times 3\frac{37}{100}$

Model Answer(s):

a. 37% of R 750 = $^{37}/_{100}$ x 750 = R262,5
b. One fifth of R 927 = $^{1}/_{5}$ x 927 = 185,4
c. 0.347 of R 84 975 = 0.347 x R 84 975 = 29486,325
d. One quarter of R 648 = $^{1}/_{4}$ x 648 = R162
e. 29,5% of R 212 = $^{29,5}/_{100}$ x R212 = R62,54
f. $\frac{10}{7} \times 362 = 517,1429$
g. $4\frac{27}{100} \times 3\frac{37}{100} = {}^{427}/_{100} \times {}^{337}/_{100} = {}^{143899}/_{10000} = 14,3899$

6. Simplify the following:

a $3a + 4a + 3a + 2b + c + 7a$

b $7x + 3y – 4x – 2y$

c $(13a + 2b + 4c - 5a + 6b + 4c) \div 4$

d $x – 10 – y$

Model Answer(s):

a. 3a + 4a + 3a + 2b + c + 7a = 17a + 2b + c
b. 7x + 3y – 4x – 2y = 3x + y
c. (13a + 2b + 4c -5a + 6b +4c) ÷ 4 = (8a + 8b + 8c) ÷ 4 = 2a + 2b + 2c
d. x – 10 – y = x – 10 - y

7. Simplify the following exponents

a $3^7 4^2 3^{-4}$

b $144^{\frac{1}{2}}$

c 9^{-2}

d $(a^3 b^2 c^4)(a^4 b^6 c^2)$

Model Answer(s):

a. $3^7 4^2 3^{-4} = 3^3 4^2 = 27 \times 16 = 432$
b. $144^{\frac{1}{2}} = 12$
c. $9^{-2} = {}^{1}/_{3}$
b. $(a^3 b^2 c^4)(a^4 b^6 c^2) = a^7 b^8 c^6$

8. Calculate the following:

$\frac{1}{2}$ of $\frac{1}{3}$

$\frac{1}{3}$ of $\frac{1}{2}$

79% of $\frac{2}{3}$

Model Answer(s):

a. $\frac{1}{2}$ of $\frac{1}{3}$ = $^1/_2 \times {}^1/_3 = {}^1/_6$

b. $\frac{1}{3}$ of $\frac{1}{2}$ = same as a) above

c. 79% of $\frac{2}{3}$ = $^{79}/_{100} \times {}^2/_3 = {}^{79}/_{150}$

9. Write the following in scientific notation:

a 45 670 000 000 000

b 45,670

c c)0,4567

d 0,00004567

Model Answer(s):

a. 45 670 000 000 000 = 4,567 x 10^{13}

b. 45,670 = 4,567 x 10

c. 0,4567 = 4,567 x 10^{-1}

d. *0,00004567 = 4,567 x 10^{-5}*

10. Convert to ordinary numbers

a 3×10^4

b $0,5 \times 10^9$

c $3,27 \times 10^{11}$

d $519,24 \times 10^4$

e 67.01×10^7

Model Answer(s):

a. x 10^{4} = 30 000

b. 0,5 x 10^{9} = 500 000 000

c. 3,27 x 10^{11} = 327 000 000 000

d. 519,24 x 10^{4} = 5 192 400

e. 67,01 x 10^{7} = 670 100 000

11. Simplify the following without using a calculator

a $5,25 \times 10^{4} \times 2,25 \times 10^{2}$

b $2,13 \times 10^{-5} \times 1,21 \times 10^{4}$

c $171 \times 10^{5} \times 1,4 \times 10^{-2}$

d $0,309 \times 10^{8} \times 32,14 \times 10^{-4}$

e $1,52 \times 10 \times 3,4 \times 10^{-2}$

Model Answer(s):

a. 5,25 x 10^{4} x 2,25 x 10^{2} = 11,8125 x 10^{6} = 1,18125 x 10^{7}

b. 2,13 x 10^{-5} x 1,21 x 10^{4} = 2,5773 x 10^{-1}

c. 171 x 10^{5} x 1,4 x 10^{-2} = 239,4 x 10^{3} = 2,394 x 10^{5}

d. 0,309 x 10^{8} x 32,14 x 10^{-4} = 9,93126 x 10^{4}

e. 1,52 x 10 x 3,4 x 10^{-2} = 5,168 x 10^{-1}

My Notes ...

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Summative Test and Attitude & Attribute Evaluation

Before the knowledge test is undertaken, the learner must be reminded of what is expected from him / her in terms of summative and reflexive competence. Read and explain to the learner, the **Preparation for Your Final Assessment** section in the learner workbook. Learners and assessor should sign off this section to acknowledge that this step was completed.

Please set up a knowledge test from the questions given as a guideline to learners and supply each learner with a test sheet.

Supply each report with the following heading:

Unit Standard:	7480	**NQF Level:**	2
Learner Name:			

Questions	Model Answers
1. Calculate the following with the use of a calculator. Give answers correct to two decimal places. a 72 x 4,05 b (0,576 – 0,532) x 67 c {(2190 – 3142) ÷ 5} d (9800 ÷ 0) x (3 + 329920) e 705 + 3 x 2	a *72 x 4,05 = 291,6* b *(0,576 – 0,532) x 67 = 2,948* c *{(2190 – 3142) ÷ 5} = - 190,4* d *(9170 x 0) x (3 + 3,2) = 0* e *705 + 3 x 2 = 4230* *(5 x 1 = 5)*
2. Estimate the following to the nearest whole number a $^{1}/_{4}$ of 25,55 b 0,57 of 425 c 25% of 786 d 0,2 x 399 e 789 + 1255	*a.* $^{1}/_{4}$ *of 25,55 = 6* *b. 0,57 of 425 = 242* *c. 25% of 786 = 197* *d. 0,2 x 399 = 79,8* *e. 789 + 1255 = 2044* *(5 x 1 = 5)*
3. Express the fractions in their simplest form a $^{24}/_{36}$ b $^{17}/_{35}$ c 2 $^{60}/_{120}$	*a.* $^{24}/_{36} = {}^{2}/_{3}$ *b.* $^{17}/_{35} = {}^{17}/_{35}$ *c.* $2\,{}^{60}/_{120} = 2{}^{1}/_{2}$ *(3 x 1 = 3)*

4. Convert the following decimals to a percentage a $^{15}/_{40}$ b $^{7}/_{28}$ c $^{120}/_{60}$	*a.* $^{15}/_{40}$ *x 100 = 37,5%* *b.* $^{7}/_{28}$ *x 100 = 25%* *c.* $^{120}/_{60}$ *x 100 = 200%* *(3 x 1 = 3)*
5. Calculate the following: a ¼ X ¾ b ¼ of 596 c $^{1}/_{2} + {}^{1}/_{4}$ c $^{34}/_{20} - {}^{34}/_{10}$ d e) $^{15}/_{35} \div {}^{9}/_{5}$	a *¼ X ¾ =* $^{3}/_{16}$ b *¼ of 596 = 149* c $^{1}/_{2} + {}^{1}/_{4} = {}^{3}/_{4}$ d $^{34}/_{20} - {}^{34}/_{10} = {}^{34}/_{20} - {}^{68}/_{20} = -{}^{34}/_{20} = -1\,{}^{7}/_{10}$ e $^{15}/_{35} \div {}^{9}/_{5} = {}^{15}/_{35} \times {}^{5}/_{9} = {}^{5}/_{21}$ *(5 x 1 = 5)*
6. Calculate the following: a 62,5% 0f 8 000 km b $^{2}/_{5}$ of R120 c If $^{2}/_{3}$ of a sum of money is R90, what was the original sum of money?	a *62,5% 0f 8 000 km* b $^{2}/_{5}$ *of R120* c *If* $^{2}/_{3}$ *of a sum of money is R90, what was the original sum of money?*
7. Use scientific notation to calculate the following: a 960 000 x 560 000 000 000 b $2,3 \times 10^{6} \times 4 \times 10^{-3}$	*a.* $960\,000 \times 560\,000\,000\,000 = 9,6 \times 10^{5} \times 5,6 \times 10^{11} = 53,76 \times 10^{16} = 5,376 \times 10^{12}$ *b.* $2,3 \times 10^{6} \times 4 \times 10^{-3} = 9,2 \times 10^{3}$ *(2x1)(2)*
8. Simplify the following a 3a + 4b + 5c – 6a – 7b + 8c b (2ab – 14bc) – (3ab + 7bc) c (24m + 15n – 21) ÷ 3 d 17m – m e 31p + 5	*a.* *3a + 4b + 5c – 6a – 7b + 8c = -3a -3b + 13c* *b.* *(2ab – 14bc) – (3ab + 7bc) = -ab -21bc* *c.* *(24m + 15n – 21) ÷ 3 = 8m + 5n - 7* *d.* *17m – m = 16m* *e.* *31p + 5 = 31p + 5* *(5x1)(5)*
9. Write as ordinary numbers a $4,567 \times 10^{5}$ b $0,56 \times 10^{3}$ c 482×10^{-4} d $0,007 \times 10^{5}$ e 560023×10^{-2}	a $4,567 \times 10^{5} = 456700$ b $0,56 \times 10^{3} = 560$ c $482 \times 10^{-4} = 0,0482$ d $0,007 \times 10^{5} = 700$ e $560023 \times 10^{-2} = 5600,23$ f *(5x1)(5)*

10. Give an example of when it is convenient to use scientific notation Explain why you would use scientific notation in the example you have given.	a *When working with very large numbers or very small ones e.g. when quoting the number of micro-organisms per cubic meter of soil.* b *Numbers are too large or to small to be calculated by a normal calculator* *(2x2)(4)* *Total: 40 marks*

Assessment Feedback Form

Comments / Remarks	
Feedback to learner on assessment and / or overall recommendations and action plan for competence:	
Feedback from learner to assessor:	
Assessment Judgement You have been found: ❍ Competent ❍ Not yet competent in this unit standard	Actions to follow: ❍ Assessor report to ETQA ❍ Learner results and attendance certification issued
Learner's Signature:	**Date:**
Assessor's Signature:	**Date:**
Moderator's Signature:	**Date:**